HOME COMPUTING WEEKLY
AN ARGUS SPECIALIST PUBLICATION
June 18-24 1985 No 117 50p

Glittering prizes

Win Firebird's complete silver range for your micro

Hit or miss?

Enterprise 128—hands-on review p.12

Epyx games to move house

CBS, the American entertainment giant is to cease operating as a software house on 30 June

The company will still be involved in the industry through manufacturing and distribution organisations but will no longer market software under its own label or using the Epyx name

"The decision was made in America according to Brian Hymes, CBS software manager and it involves the whole of Europe ' We have done very well since December when we started but the parent company has decided to cease the software house activities through out Europe for other reasons ', commented Brian

The most successful games currently produced by CBS are the Epyx titles—Impossible Mission Pitstop II and Breakdance It is these titles which are most likely to find a new home, if contracts can be agreed

It appears that there were lengthy discussions at the Consumer Electronics Show in Chicago recently with several companies trying to sign a deal

The "leading contender" is US Gold according to its marketing manager Tim Chaney He said that the deal hadn't yet been signed but that there would be "great disappointment and considerable surprise" if it wasn't finalised soon

There is a certain degree of urgency in the negotiations due to the cessation of CBS Software at the end of this month This could mean

that the Epyx titles will be out of stock for some time

US Gold is bidding for the entire Epyx range of both old and new titles New titles are FBI and GI Joe and Summer Games II and Winter Games follow on from earlier successes

CBM show—15,000 attend

The Sixth International Commodore Show took place at the Novotel in Hammersmith London from 7-9 June and 72 exhibitors came from all over the country to show off their wares and in many cases introduce new products to the market place.

The show was not very well attended Official sources put the number of visitors at 15,000, a thousand less than last year and a third less than expected Numbers don't tell the whole story though Those who attended were well pleased

Bond girls, Nike Clark and Maggie Defreitas bought glamour to the Domark stand whilst Graham Gooch demonstrated his skill on Audiogenic's pitch and the UK Warriors entertained with a break dancing display

There is a full report of the show on page 19

Dressed to kill

Free Graphics conversion chart – pull out and keep part two

Beginning machine code on your Spectrum—part one p. 37

Jump for joy with George p. 3

Up to your neck in MUD p. 21

Add-on review special for BBC users

Spectrum + OCP

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SNOOKER – VIDEO POOL (OCP) is a recent addition, and is probably the best of the lot" . . . CRASH May 1985

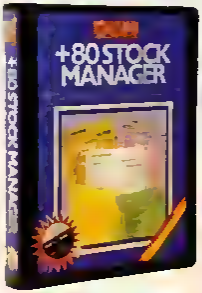
CASINO ROYAL is a very pleasing version . . . well worth considering" CRASH May 1985

Video Pool 48K Spectrum £5.95

A highly sophisticated simulation of the game of pool guaranteed to test your skill and judgement to the limit The smooth flicker free movement of the balls, accurate calculation of the angles and speed make this the best version of pool available for the Spectrum

Casino Royal 48K Spectrum £5.95

Roulette and Pontoon are the classic games featured with all the atmosphere of the real thing with the Currah Microspeech facility Roulette is for up to six players Full table layout with superb wheel action Teaches you roulette and maybe will help you to win a fortune!
Pontoon also known as Blackjack is just you and the bank Superb graphics, and a pot of money is all you need to give hours of endless fascination



Another classic winner from OCP is CHESS — THE TURK which is very popular and deservedly so since it was launched Probably the best chess game for the Spectrum around Outstanding features include Blitz chess, Demo mode Replay Edit/set-up, List moves to screen and printer, line print the board, save moves and board load moves and board There are six levels of play and all the normal chess moves are made with ease If you can't beat 'em — join 'em in other words you can use the HELP key! A bargain at £5 95

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Casino Royal ☐ Video Pool ☐ Chess The Turk ☐ (tick box) Cheque/P O enc for £ or telephone ☐ details

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Telephone

HOME COMPUTING WEEKLY

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Soapbox

"Home computers are not just presents and we should stop treating them as such. They are already a fundamental part of our lives and, given the chance, will evolve to play an even more important role in both our leisure and working hours."

We could almost hold a competition with the question: Who said that? It was Nick Bessey, Commodore UK's general manager at the opening of the Commodore show.

I have to admit that I agree with him and it has been a subject that has taken my interest for some time now.

Home computers are superb games machines and can give a great deal of pleasure when used as such. They can have a more serious side however and it is time that this industry started to emphasise it a little more.

Our current series on Micros in Society is only the tip of the iceberg, an important tip perhaps, but there is so much more still to be seen. Nick Bessey mentioned their use as home productivity tools and as learning aids. I would like to add communications aids and information terminals to my list.

There is still a great deal of work to be done in this area but I have the feeling that the manufacturers are waiting for an increase in demand before they develop the goods.

Home Computing Weekly is very interested in these developments and would like to hear from our readers. Send us your ideas and suggestions as to how you would use your micro and we will print the best.

Dave

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SPECIAL FEATURES

Graham Gooch at Commodore show — p19

BBC

AMSTRAD

SPECTRUM

COMMODORE

REGULARS

Coming soon

- More from Doreen Naylor on telecommunications
- Hudsonsoft joystick review
- Character grid for the Amstrad
- Plus — features, competitions and lots of reviews!

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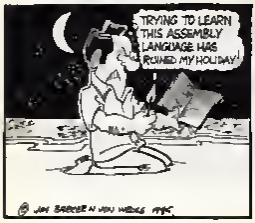
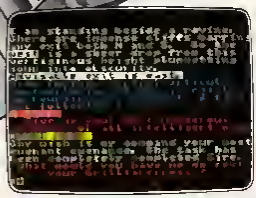
BASIC LIVING

Jim Barker-Jon Wedge

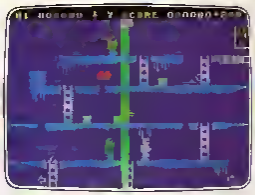


SILVER RANGE... Seeing



THE HELM Adventure
An amusing, stylish text adventure

HELICHOPPER Arcade
Fast and smooth multi-screen action



MR FREEZE Arcade/Strategy
Six compartments each tougher to de-ice

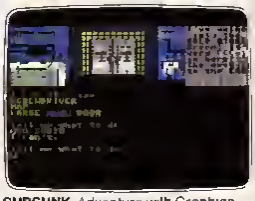
CHICKIN CHASE Arcade
Ruling the roost can be a hard life

EXODUS Arcade
Strange creatures emerging from the pits

DUCK! Arcade
Comedy and music in this novel duck shoot

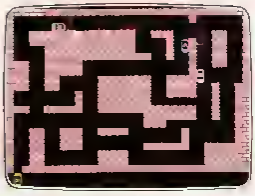
ESTRA Arcade
Recover the sacred statue of Estra the Snake God

MICROCOSM Arcade
Addictive and challenging multi-level arcade action



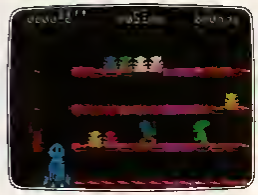
SUBSUNK Adventure with Graphics
Trapped on the sea bed in a scuppered submarine

VIKING RAIDERS War Game
A test of strategy against the computer or friends

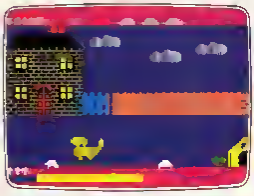


RUN BABY RUN Arcade
Multi-car cop chase and shoot-out

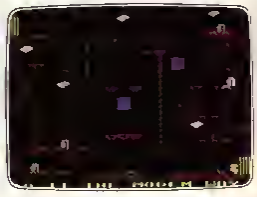
ZULU Arcade
100 golden masks hidden in a magic maze



DON'T PANIC Arcade/Strategy
Amusing and challenging a game with a difference



DON'T BUY THIS! Compilation
Five of the worst games you have ever seen

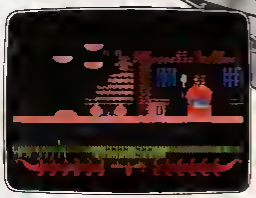


THE HACKER Arcade/Strategy
Terminal to modem telephone network to mainframe

is believing £2.50 each.

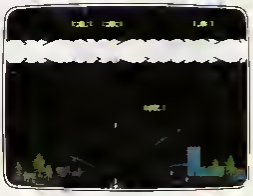
FAHRENHEIT 3000 Arcade/Strategy
Sixty four screens to meltdown

GOGO THE GHOST Arcade/Adventure
150 different haunted castle chambers



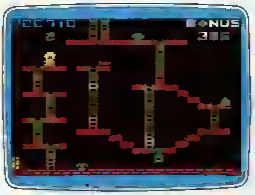
CIRCUS CIRCUS Arcade
Twenty circus rings to escape

HEADACHE Arcade
Nervous Ned s quest to serve the Brain

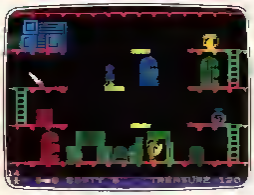


BIRD STRIKE Arcade
Wing the planes and shoot the pigeons

THE WILD BUNCH Strategy/Adventure
Accused of murder hunt the real killer



MICKEY THE BRICKY Arcade
Four screens packed with fun



BOOTY Arcade/Adventure
Twenty holds full of pirate loot

SHORT'S FUSE Arcade/Strategy
Sam Short secret agent versus Boris and his bombs

FIREBIRD SILVER CATALOGUE

AMSTRAD CPC 464
026 **MR FREEZE**
029 **THE WILD BUNCH**
042 **SHORT'S FUSE**
044 **SUBSUNK**

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003 **BIRD STRIKE**
005 **DUCK!**
022 **ESTRA**
023 **THE HACKER**
025 **MR FREEZE**
039 **MICROCOSM**

ELECTRON
027 **BIRD STRIKE**
030 **THE HACKER**

COMMODORE 64
015 **MR FREEZE**
017 **BOOTY**
018 **EXODUS**
019 **HEADACHE**
020 **ZULU**
024 **GOGO**
028 **ESTRA**
032 **SUBSUNK**
034 **THE HELM**
038 **CHICKIN CHASE**
041 **CIRCUS CIRCUS**

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006 **RUN BABY RUN**
035 **DON'T PANIC**

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008 **VIKING RAIDERS**
012 **THE WILD BUNCH**
014 **MR FREEZE**
016 **BOOTY**
031 **SUBSUNK**
033 **THE HELM**
036 **SHORT'S FUSE**
037 **HELICHOPPER**
040 **DON'T BUY THIS!**
043 **FAHRENHEIT 3000**

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HI HO SILVER

There are games for a whole range of micros in our solid silver competition

There are prizes for 20 readers this week and they can include the users of the six most popular micros

If you own a Spectrum, VIC-20, BBC, C64, Amstrad or an Electron machine, then get your thinking caps on

To celebrate the release of its new range of Silver games, Firebird is offering 20 readers one of its exclusive red cassette cases filled with all the games for their machine This makes each prize worth up to £40!

Firebird burst onto the software scene just over a year ago and were pioneers of the budget software range The Silver range are priced at just £2 50 and this makes them ideal pocket money presents

The concept certainly caught on and the company's best seller "Booty" has now sold well over 100,000 copies, an event marked by the presentation of the first Home Computing Weekly Gold Cassette award Firebird has now sold around a quarter of a million games

You are going to have to think a little to win this week's prize All the questions are about silver and we hope that they have you searching the library of your reference books to find the answers

The Questions

1 What is the chemical symbol for the element silver?
2 What is the meaning of EPNS?
3 Silver can be bought by weight but in what units is this weight measured?
4 Which country is named after silver?
5 Which cowboy had a horse called Silver?
6 How many years have you been married if you celebrate your silver wedding?

How to enter

- Answer the questions and write your answers in the space provided on the coupon
- Fill in your full name and address clearly
- Seal the coupon, on its own, in an envelope and post it to Firebird Competition, Home Computing Weekly, No 1 Golden Square, London W1R 3AB
- Make sure that your entry arrives by first post on Friday 5th July, 1985

Special note

If you own a home computer and will be celebrating your silver wedding this year, please let us know at HCW We might be able to add to your celebrations

The rules

Entries will not be accepted from employees of Argus Specialist Publications Firebird Software and Alabaster Passmore & Sons This restriction also applies to employees families and agents of the companies

The How to Enter section forms part of the rules The editor s decision is final and no correspondence can be entered into

Firebird Silver Competition

Entry Coupon

Name _____

Address _____

_____

_____

_____ post code _____

Computer owned _____

Answers

1 _____

2 _____

3 _____

4 _____

5 _____

6 _____ years

Complete clearly and fully — if you are a winner this will act as a label for your prize Post to Firebird Competition Home Computing Weekly No 1 Golden Square London W1R 3AB Closing date first post Friday July 5 1985 Don t forget to follow closely the advice in the How to enter section

NEWS

Spectrum Swap

If you've got a 48k Spectrum in good working order, which you no longer want then Timescape Adventure Holidays might be interested in taking it off your hands

The holiday company is looking for about 12 Spectrums and is offering adventure holidays in exchange

The adventure holidays last for a week and worth around £100 They are real life role-playing adventures in which you can act out the exciting lives of people in times gone by

If you are interested then contact Timescape at the address below by 1 July 1985

Timescape Adventures, PO Box 9, Harwich, Essex CO12 3HD

Top of the soft

A recently published Gallup survey shows that US Gold and Ocean are jostling for place as the most popular manufacturer in the business.

The Gallup survey details the market share of about 25 companies per month in the first three months of this year

Other contenders for the top place are Mastertronic, Activision, Ultimate and Firebird. It is interesting to note that two of these software houses — Mastertronic and Firebird — are producers of pocket money priced games.

Further down the list, though still doing well are Mikro-Gen, Anirog, Software Projects and Addictive Games.

For the month of March, Softaid managed to achieve fifth place, proving that computer owners have a social conscience too!

Stripping off

If you're fed up of tearing the strips off the sides of your computer print outs, then the ACS Easystrip is what you need

ACS s Easystrip can be used on perforated or non-perforated paper It has a cutter blade which clamps over the margin and a series of pegs hold the sprocket hole securely

It's easy to operate and costs £9 95

ACS, Bowmoker Hse, Etruria Rd, Hanley, Stoke-on Trent ST1 5NH

Mark Strachan (left) and Dominic Wheatley getting into the spirit of things

A view to success

Domark's latest game, A View to a Kill, was launched at the Commodore show last week It is the first computer game to be based on a James Bond moves and is the follow-up to Domark's Eureka which achieved chart success last year

Members of the press were invited to an exclusive preview on 5 June The climax of the event was intended to be a helicopter landing by a James Bond look-alike Unfortunately the weather prevented this

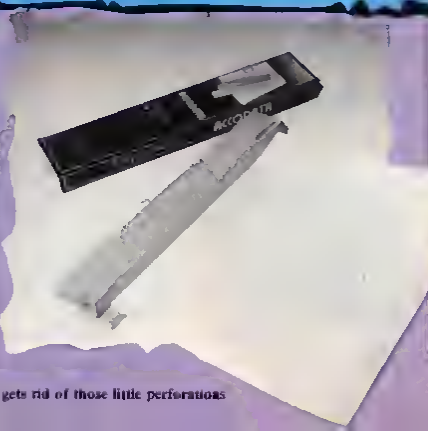
The content of the game is based closely around the plot of the film and the action takes place in Paris San Francisco and the mines of California

The James Bond theme, title music from Duran Duran and electronic speech also accompany the game

It is initially to be launched on the C64, Spectrum and Enterprise but versions are in the pipeline for Amstrad and IBM computers.

We apologise to Domark for describing the game as an adventure in HCW 115, it is in fact an arcade game The photograph in HCW 115 was actually of Eureka, however this week's is definitely a Bond snap, even though Roger Moore isn't in it!

Domark 204 Worple Road, Wimbledon SW20 8PN



The ACS Easystrip — gets rid of those little perforations

Oric bought

Eureka Informatique, a French firm of computer distributors, has purchased Oric Products International from Chater and Mayhill, the receivers, as reported in HCW 110 (April 30).

The purchase covers all stocks and parts for the Oric range of home computers and includes the right to the company name and trade names — Oric, Atmos and Stratos.

Eureka's plan for the Oric range in Britain will be announced later this year. Meanwhile, although the warranties on Oric computers lapsed following receivership, existing owners who require service and parts will be able to obtain assistance from the French firm.

Murray Cooke, John Mocky Associates, 4 Golden Sq, London W1R 3AE

Right on cue!

Ansoft is [illegible] software [illegible] with [illegible]

[illegible]

Nu-Way Components Ltd has just released a range of computer accessories which have already been successful in Denmark.

According to the makers, the AM range provides almost everything needed to maintain optimum performance from computer hardware.

The range includes easy-to-use computer cleaning materials, special safety mailing packs for diskettes and high quality tapes for information storage and reproduction.

Perhaps the most useful articles in the range are the CKI-1 Computer Keyboard Cleaners. These remove grease, dirt and smoke from the keyboard. The tissues come in boxes of 50.

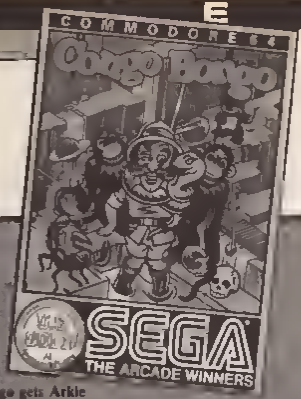
Elephant Memory Systems is also producing a range of computer care products including three special purpose solutions, three environmentally safe spray pumps and lint-free cleaning cloths. The three solutions are for screen plastic metal cleaning and discharging static.

Nu-Way, 202 Hagley Rd, Edgbaston, Birmingham B16 9PQ

Elephant, Dennison Manufacturing, Colonial Way, Watford, Herts WD3 4JY

Spring cleaning from Elephant

Nu-Way's computer care range



Congo Bongo gets Arkie

US honours list

Several of US Gold's games have been honoured in America in the Electronic Games Design Awards 1985 — otherwise known as Arkies.

Ultima III was awarded the title of Computer Game of the year and Best Computer Action Game went to Blue Max.

Other US Gold game which received accolades were Buck Rogers, Congo Bongo, Bruce Lee, Mig Alley Ace, Pole Position and Zaxxon.

The awards salute outstanding achievement and according to US Gold these top games will all be available in the UK very soon.

US Gold, Unit 10, The Parkway Ind Est, Heneage St Birmingham B7 4LY

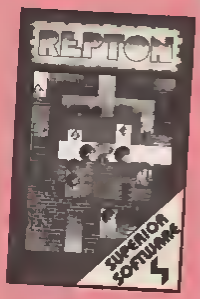
Loretta and friends muck in

Software update

Perhaps the most surprising software release this week is The Secret of St Bride's, a program produced by St Bride's School, Co Donegal, Ireland. It is a spin off from a very successful holiday idea which involves adults going to the school and reliving their school days!

Superior Software has a new release called Repton and managing director, Richard Hanson said: "We are convinced it is our best game yet!", so look out for it.

For those who enjoy a more relaxing type of game, Kuma has released Bridge for the Amstrad. Major features of the game, claims Kuma, are the high quality of play, excellent use of graphics, sound prompts and fast reaction time — eliminating long delays when playing.



Title	Machine	Price	Publisher
Repton	BBC/Electron	£9 95	Superior
Secret of St Brides	Spectrum/C64	£5 95, £6 95	St Brides School
Bridge	Amstrad	£8 95	Kuma
MCT Basic	C64	£14 95	Micro Competent Trading Company
Zapp	Amstrad	£15 95	Hewson
Amazon Warrior	C64	£7 95	New Generation
Powerplan	C64	£44 99	First Publishing
Answer Back Sport	BBC	£10 95	Kosmos
Answer Back Quiz	BBC	£10 95	Kosmos

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CBM 64

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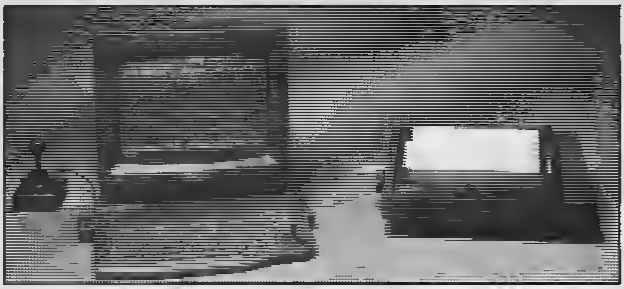
HARDWARE



Clive Gifford got his hands on the new Enterprise 128 and his fingers were very happy indeed!

After suffering the ignominy of being re-named constantly, the Enterprise (alias Flan, alias Elan, alias Samurai) eventually reached the shops over a year later than planned The first model, the Enterprise 64, despite its late arrival, did not look out of place in the highly competitive £200-£300 market. Now, with the release of the new 128 machine, and the reduction in price of the 64, Enterprise Computers look set to make an impact on the home computing scene

The computer comes in some of the best packaging that I have seen; a well-made box housing the machine with all the leads, manuals, the power pack and the demonstration cassette underneath Enterprise have included an excellent booklet, a 'Setting Up Guide' which takes you through the process of getting the machine up and running. To seasoned campaigners in the computer field this is all a simple matter, but for the beginner, this booklet is ideal and, thankfully does not suffer from excessive jargon

My first impression of the machine was that it looked rather like a pancake, such was its flat design It is supplied with all the leads that you'll need to connect it up including the largest power pack that I've seen Another difference from other computers is the double set of leads that change your ordinary cassette (if it has a remote socket) into a dedicated data-recorder

Before powering up, I had to insert the BASIC cartridge in the port on the left hand side of the machine There is a distinct click as the cartridge is held in position and the connection feels very solid Loading the demonstration cassette took me half an hour as you must adjust the volume control on your cassette recorder to a suitable level. You are helped by a red block which appears at the top of the screen This tells you to turn the volume down until you obtain a green block instead This is a good idea, but in practice is a little fiddly Once I managed to get the correct level, I had no trouble loading or saving programs

The demonstration cassette is surprisingly good It takes the form of a graphical journey through the Enterprise's circuit boards stopping off at the main chips where we are given a few brief textual details of their capabilities as well as a demonstration The sound chip demo was very poor but the graphics displays were quite breathtaking — obviously a lot of work had been put into them

The Enterprise appears to be well-built and for its size is light The keyboard houses 68 keys of a style similar to the Sinclair QL's, but of slightly better quality However, its not as good as the keyboards on the BBC or Amstrad This is an oversight of the computer's designers particularly when the machine sports a built-in word processor

An instantly noticeable feature of the Enterprise's hardware is the integral joystick It feels quite solid and will stand up to some wear from arcade addicts but most people prefer a handheld model with a fire button I can't help feeling that it is little more than a gimmick and an annoying one at that, as it gets in the way when you want to press ENTER, DEL or INS

At the back of the machine is a plethora of interfaces and sockets There is a non-standard Centronics printer port, 4 sockets for the cassette motor control and a T V and power socket, there are two control interfaces for other peripherals such as joysticks, a monitor socket and a Serial interface for connection to other Enterprise computers via the integral local network

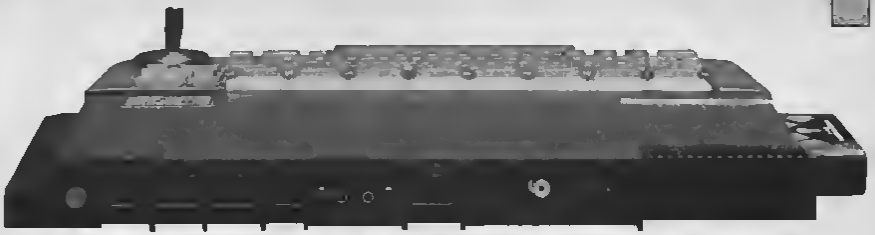
The Enterprise has one other interface, a 64-way expansion port that will connect up to future Enterprise developments An obvious possibility is an extra memory module, as using the RAM bank switching method, the Z80 processor of the Enterprise can access up to 3 9 Megabytes of user RAM

Using the computer through BASIC is most enjoyable The 8 function keys hold 16 of the most commonly-used commands and this makes programming just that fraction faster and easier The names of the functions are displayed on a strip of paper held under a clear plastic window This window can be lifted up and the paper taken out and replaced with the keywords applying to the functions that you have programmed I expect many computer games and indeed serious software will use this feature

The BASIC itself is far from standard, (if there is a standard) Good old LEFT$, RIGHT$ and MID$ have gone and are replaced with a system of string slicing rather similar to the ZX spectrum's — an unnecessary alteration in my opinion AUTO, RENUMBER and DELETE are all included as are a number of new commands It would be impossible to detail them all, so here are a few of the more interesting ones

The Enterprise supports interrupts and windows The commands, DEF, DEF END and CALL form the basis of procedures whilst INFO provides the user with the number of bytes free (at the start, just over 113K) and the first program line. IMAGE is a more sophisticated form of PRINT USING and there is a vast array of additional numeric and array based commands

There's nothing very remarkable about the sound features of the Enterprise There are 3 channels offering 4 voices The sound can be played through the computer's own speaker,



which I found a little quiet, or through an external sound source such as a Hi-Fi. One interesting feature is its stereo sound capability. This is controlled by the command SOUND LEFT X, RIGHT Y, where X and Y are the volume values. Complex sound envelopes can be created and there are commands to deal with flushing the sound queue and shaping the sound. Sound buffs should have good fun with these facilities but the majority of users will benefit from these features only by using commercial software.

The command TAPE SOUND allows the programmer to transfer music or speech from a cassette through the computer and the machine's internal speaker. This feature when allied with the motor-controlled cassette recorder will allow the programmer to creater voice-overs, music soundtracks and a whole host of other effects.

The graphics capabilities are excellent but difficult for the new user to get to grips with. It has 4 graphics modes with the highest resolution being 672 by 512. There is a trade-off between the resolution and the number of colours available in each mode. The highest resolution mode allows all of the Enterprise's amazing 256 colours to be displayed at the same time. The other modes offer 16 and 4 colours.

The colours can be selected using the PALETTE command which as its name suggests sets up a palette of colours from which the programmer can select the few that he or she needs. Eight of the colours can be accessed without using the complicated SET INK command. These colours, MAGENTA, BLUE, BLACK, WHITE, RED, CYAN, YELLOW, GREEN are used in the same way that PLOT or BORDER is. PLOT forms the main graphics display command being linked with ELLIPSE to draw circles and ovals of specified shape. PLOT PAINT provides a fill command which can be most useful and can be linked up with additional commands such as FORWARD, ANGLE and RIGHT to provide Turtle graphics.

The Enterprise graphics are something to savour. The wide range of commands and their complexity will lead to many hours of experimentation but the results could be very impressive. The extra colours and memory produce effects and displays that will turn a proud Beeb owner green with envy.

A fascinating feature of this computer is its ability to support a local network of up to 32 other Enterprises. I haven't unfortunately seen this feature running but can see Enterprise user groups linking up and perhaps creating a micro version of the famous on-line adventure, Multi-User Dungeon or MUD.

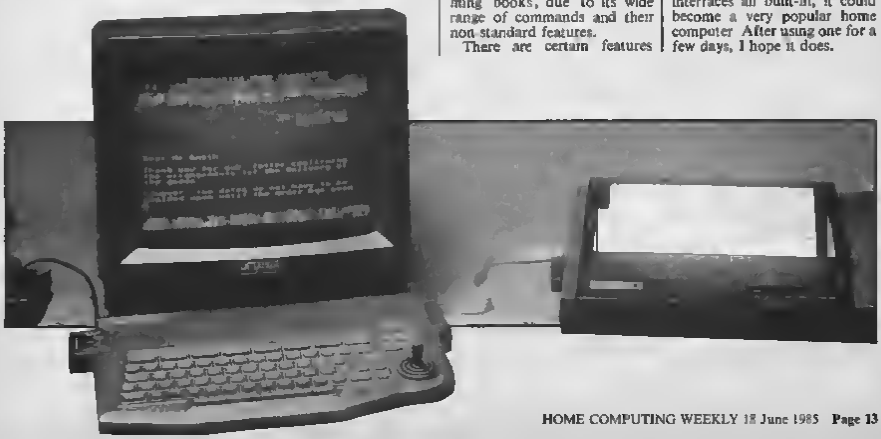
This machine has many integral features that you are used to seeing as optional extras on other computers, such as the word processor option. Entering TYPE puts you into the Word Processing mode and this can even be done when the BASIC ROM cartridge is not in position in the ROM port. It is easy to use and its features are excellent. Justification, margin setting, word wrapping, tabulation and centring are all available and for people who use home computers to write letters, small reports or, like me, articles, its features are more than enough.

The manual that comes with the machine is better than most. It is nicely presented and produced but not really suitable as a beginner's guide. There is definitely a need for a beginner's manual, though perhaps this is not a beginner's computer. Certainly, the machine will spawn a number of programming books, due to its wide range of commands and their non-standard features.

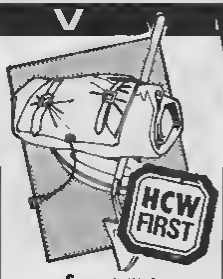
There are certain features that I look out for in a new computer that tells me much about it. The quality of the error messages and how simple and effective the program line editor is to use tell me about the computer's design and quality. The 128's line editor is superb. You simply move the cursor to the point on the screen (with the joystick) and make the change. On listing the program, you will see the change incorporated. It is as simple as that. When relisting a program, any commands within a FOR/OR DO/LOOP are staggered to make the listing presentation neater.

Another feature that I liked was TIME$ which once set to a value in hours, minutes and seconds acted as a digital clock. DATE$ works in a similar way though it appears to be of little use unless you keep your computer switched on continuously.

In conclusion, with its extra features and new commands, the Enterprise appears to be aimed at the second-time buyer whose interest is other than games computing. Around the £250 price range it will prove to be tough competition. Watch out Amstrad, Atari, Commodore and most of all, the MSX range, because with a network, wordprocessor, high resolution graphics and serial and parallel interfaces all built-in, it could become a very popular home computer. After using one for a few days, I hope it does.



SOFTWARE



Supergran

"By Brian Howarth and Mike Woodruff of Gremlins fame" boasts the cover of this Supergran adventure, but I'm afraid that the authors haven't equalled the quality of that earlier adventure

The plot requires you to recover valuables that have been stolen by Scunner Campbell, who will of course do his best to stop you In addition, Gran, who isn't exactly a spring chicken anymore, seems to come over all frail and fragile periodically, needing good doses of porridge to pep her up so that she can continue her search

As an adventure for kids (which is how it describes itself), Supergran is quite good, with puzzles that should appeal to younger players, though they are unlikely to provide adventure veterans with any real challenge I seemed to spend more time assembling the ingredients for a bowl of porridge than in searching for stolen goods

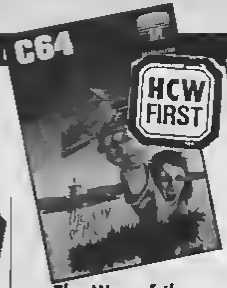
Unfortunately, Supergran is rather sloppy in places, and I found myself getting no helpful response to such standard commands as "open door", and "wear hat" In fact, the program tells you that it doesn't know the word "wear ' despite the fact that it is specifically referred to in the instructions as a word that is understood The program also tells you about various objects that you can see, only to later tell you that it doesn't know what they are Plus, the authors don't seem to know how to use the full stop, which sets a poor example for the kids the game is peesumably aimed at **C.J**

Price: £9 95

Publisher: Tynesoft

Address: Addison Industrial Estate Blaydon upon Tyne, Tyne and Wear NE21 428

SPECTRUM



The Way of the Exploding Fist

Launching The Hobbit on the Japanese market seems to have gone to Melbourne House's head with the release of this excellent Karate simulation

The game's graphics are extremely sophisticated and the range of moves ensures a battle which would do justice to any Bruce Lee movie Aggressive kicks, punches, sweeps and defensive crouches and somersaults are all possible in every imaginable combination, making full use of the joystick Defensive moves are obtained using the eight joystick positions but pressing the fire button at the same time causes the sparks to fly with a range of eight kicks guaranteed to floor your opponent if used correctly

A perfectly executed move which makes contact with your opponent gains a full 'yin-yang' symbol, a move which at least makes contact only gaining half a symbol A numerical value is obtained also which takes into account the difficulty of the move In the single player option two yin-yangs win the game, the two player game being the best of four timed bouts

In the single player game against the computer, you start as a novice but winning the contest gains you a First Dan, and a more skillful opponent takes over This continues until you reach Tenth Dan but what happens next I cannot say, the best I managed was Second Dan after playing for two hours!

The only gripes I have relate to the awful shouts emitted by the combatants and a niggling doubt as to the lasting enjoyment of the game At the moment I'm hooked and the sounds can be switched off if desired **E.D.**

Price: £9 95

Publisher Melbourne Hse

Address: Castle Yard Hse, Castle Yard, Richmond TW10 6TF

C64

International Tennis

International Tennis This is the latest in Commodore's International Sports series and although it lacks the range of options available on Activision's version, its simplicity makes it suitable for the less ambitious gamester

This is a two player game and the opening screens give the usual Commodore option to select the colour of each player's outfit, level of play (one to four) and one or two player game. When satisfied, the court is revealed giving a viewpoint from the side in three dimensions

A joystick is essential to play this game and nine possible strokes are available Play commences by pressing the fire button to serve the ball To hit the serve the fire button must be pressed again and the success of the service depends on the position of the joystick and the height at which the ball is struck Foot faults are possible, as are net calls and faults

When the serve is returned you must dash over to intercept it, select a joystick position for the stroke you wish to play and press the fire button to make the swing

Scoring follows the usual tennis conventions and the match is the best of three sets If a player reaches seven sets without gaining two sets advantage over the opponent, then a tiebreak takes place until the match is decided

The sound effect for the shout of the crowd is awful Even worse is the constant repetition of this din when a match is over and the credits roll as the victor acknowledges his success **E.D.**

Price: £9 95

Publisher: Commodore (UK)

Address: 1 Hunters Rd, Weldon Corby, Northampton NN17 IQX

C64

Lands of Havoc

During a hard days reviewing session it is easy to load a program without realising who produced it Land of Havoc was such a game and my first impression was its striking similarity with Cuthbert enters the Tombs of Doom Hardly surprising that the producers of both programs is Microdeal

The background story tells a tale of a land which has fallen under the destructive power of the Dark Lords. As the reptilian hero Sador you must free the land of their evil spell

Before the arrival of the evil lords the land was ruled by the High Vanish, a sorceror with skills equal to Merlin himself In his wisdom the good wizard spread artifacts around the land and Sador must find them all in sequence to gain entry to the Lord's subterranean hideaway.

This maze game has a twist to it The kit includes nine postcards which each have a sector of land on it Each time the game is played the cards must be placed in a different given order forming a general map which guides Sador's movements

Each area is inhabited by different monsters which must be avoided or killed and as Sador gets nearer the final solution their movements become more frantic

On entering the underworld more talismen must be found to overcome each Dark Lord

At this point the game becomes a pure maze game which can easily be mapped using the pause facility, but with a claimed 2000 screens this should take many hours of endeavour

If you like solving mazes, this one is worthy of investigating

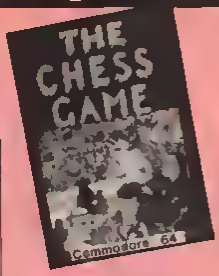
E.D.

Price: £6 95

Publisher: Microdeal

Address. 41 Truro Rd, St Austell, Cornwall PL25 5JE

C64



The Chess Game

If Lewis Carroll had written a computer program then this would be it All you have to do is move your pawn, a little boy in a nightshirt, from square to square across the board Sounds easy, but just try it The chess pieces, board and crowd are all against you as you try to cross to safety in this nightmare of a game

The first screen reveals the stadium with a vicious looking crowd who jeer as you enter Soon your first opponent, the knight, arrives and battle commences As you move from square to square their colour changes and the knight pursues following the eccentric path of its more normal existence If it lands on the path you leave, the colour changes again and that square must be avoided for the rest of the game

The crossing must be attempted five times in each direction Total success means bonus points, failure is not always a catastrophe because the pawns who did make it go onto the next round Even if only one pawn makes the grade, completion of a crossing at the next level brings a bonus

As you progress you meet the bishop, the rook, the king and the queen in excellent graphic action I won't spoil the fun by giving away the secrets except to say look out for the board, it can turn very nasty and the crowd throw bombs

I strongly recommend this game whether you understand chess or not Just add quick thinking and fast reactions to get a recipe for excitement.

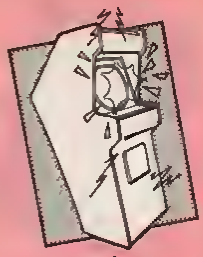
E.D.

Price: £7 95

Publisher: Micro Classic

Address Priory Rd, Forest Row, Sussex RH18 5JD

C64



Pipeline

I was interested to see this having reviewed Super Pipeline II for the Amstrad recently

The plot is more or less the same, with a tangle of pipes growing from the top of the screen to barrels at the bottom The idea is to fill the barrels with water Unfortunately, up a ladder at the side of the screen trog a variety of nasties whose sole aim in life is to put a bung in your pipe, thereby blocking it Very painful! Your only weapon is your trusty spanner which can be thrown at them if you're lucky

From below, the dreaded hard case lobster also crawls up your pipe So one way and another you soon acquire a bung Now you must collect a workman to repair the damage, and protect him from the nasties, whilst still shooting them on the ladder All very complex, and good fun Success promotes you to an even more complicated pipe

Graphically, this exploits all that the Spectrum is capable of in 2-D, and the sprites move smoothly, controlled by a variety of joysticks Enjoyable, though without the graphic excellence and humour of the Amstrad implementation

There is an added bonus on the tape with an alien zapper, SOS, included too You must boost down to a planet's surface avoiding the aliens collect the people, and return to the mother ship A good game though the movement is very flickery In comparison to Pipeline Fun and good value

D M

Price: £6 95

Publisher: Viper

Address: Eardley Hse, 182/184 Campden Hill Rd, London W8 7AS

SPECTRUM

★ ★ ★ ★ ★

Flipped

★ ★ ★ ★

Hooked

★ ★ ★

Keen

★ ★

Yawning

★

Comatose

Video Pool

Snooker et al was very popular on home computers last year Now OCP adds pool to the library Unlike its less sophisticated cousins on Casino Royal, there's no help here in transferring to Microdrive There's a turbo loader in the way They do share the same warranty disclaimer which seeks to limit your legal rights

Given that there's no attempt to provide the illusion of 3 D, the graphics are rather well done, particularly the intro screen and hi-score table Well done James Hutchby! Regrettably, the pools balls are displayed in glorious black Controls are via Sinclair, Kempston or cursor joysticks, but are much less complete than Steve Davis' Snooker for example Instead of placing a cursor on the target ball for direction, spin etc , the cursor is moved around the cushion, and the cue ball zooms straight for it at a strength determined by holding the fire button until the required power level is registered on a bar above Three different games can be set up, and the option is offered to alter the table to set up trick shots

The controls need a fair bit of practice, but after about 15 minutes I was able to reach a three frame game, and in the light of the complexity of the scoring system, I was glad my Spectrum was working it out for me

Quite an adequate implementation, and certainly very playable, with solo and multiple player options, this represents reasonable value for money

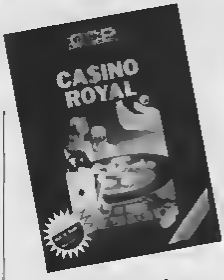
D.M.

Price: £5 95

Publisher: OCP

Address: 4 High St, Chalfont St Peter, Bucks SL9 9QA

SPECTRUM



Casino Royale

Don't confuse this with anything to do with James Bond The spelling's different Cunning huh? What you get are two casino games, Roulette and Pontoon — Blackjack with a cloth cap

Roulette could be said to be icon driven, you place your bets on the board by moving a cursor with your joystick Several are catered for Once the placing of bets is over, the game moves into the wheel phase No attempt is made to simulate 3-D but movement is very smooth, with suitable sound effects Currah Micro Speech is also featured, though I couldn't test this because I haven't got one The game continues till you quit, or until you run out of money, in which case a suitably rude message is printed

Pontoon is the old stick, twist or bust game You must bet on the possibility of reaching a fare value of 21 or nearer than the computer gets Over 21 and you're bust Again, the computer plays a mean game The graphic standard of this offering is best described as adequate, though it's pleasing to note the detailed instructions for saving the whole thing to Microdrive, and the complete playing manual

Given the number of Summer Fairs, Fetes and PTA gatherings coming up in the next few weeks, I can see the humble Spectrum being pressed into service to part some genuine punters from real money! Reasonable value though not outstanding

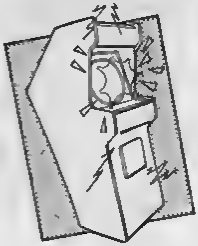
D.M.

Price: £5 95

Publisher: OCP

Address: 4 High St, Chalfont St Peter, Bucks SL9 9QA

SPECTRUM



Concentration

The publishers of this tape are keen you should know that the lack of flashy packaging and hype are all part of their plan to keep cost down As a result all you get is a plain library case, and a typewritten label, rather like the early days of ZX81 software The game, however, is a different matter I suspect it's written in BASIC, but it goes to show just what can be done with care

Designed to increase your powers of concentration and recall, it features a pack of cards placed face down By momentarily revealing the values of two cards at your request, it's possible to build up a picture of where they are You then score points by matching pairs, either solo, or against two levels of computer play, together with friends As you might expect, the Spectrum remembers what's where but it's quite possible to beat it At the end of the game, you have the option to leave the cards in the same layout, or opt for a new one Simple idea, but fun to play, and, yes, there is an improvement in your performance as the game progresses

The computer is slow in making its choices, and graphics are adequate without being arcade standard It would appear, however, that in order to protect the program, the error stack pointer has been poked to a new value, thus an inadvertant press of the cursor keys, for example, results in the program crashing Enjoyable

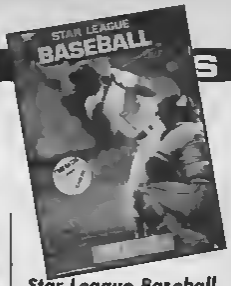
D.M.

Price: £2 50

Publisher: Lion Software

Address: Harlaw, Brunthwaite, Workington, Cumbria CA14 4SZ

SPECTRUM



Star League Baseball

In America the national sporting obsessions are American football and baseball, which correspond to our cricket and soccer mania. Of the two American sports, their football is the more familiar, baseball being a complex mystery.

This new computerised version of baseball from Activision can help dispel some of these mysteries

For my part, I would have preferred greater explanation of the game on the dreadful instruction spreadsheet which Activision insists on including with its games

The options at the start first of all allow practice, one or two player game The practice game pits you against legendary pitcher (bowler), Heat Huldoon. The computer is the formidable opponent in the one-player game

If the practice option is not taken, the next menu allows each player to select their teams and then the game begins

There is a minimum of nine innings to a game and to win against the computer relies on skills far beyond my puny efforts I found the timing for the bat swing difficult to master and the 3D view made fielding difficult to judge Perhaps greater familiarity with the multiple joystick modes may have helped but somehow I doubt it

Graphically, this game does not compare well with Imagine's World Series Baseball, lacking its big screen action and multicoloured teams Where it does score is in the complexity of the variations possible but is the British market ready for it? A look at the Top Ten games implies that maybe it is, but not for me

E.D.

Price: £10 99

Publisher: Activision

Address: 15 Harley Hse, Marylebone Rd, London NW1 5HE

C64

Leonardo and Light Magic

A very simple program to write on the Spectrum is an art utility line drawing, colours, UDG designing and so on Loads of these appeared soon after its launch, and eventually Melbourne Draw and Paintbox became established Strange then that three years later, on a machine with limited resolution and pathetic attributes, two new products have appeared from well respected software houses

Both programs offer certain basic facilities etch-a-sketch type drawing, circles, filling and magnify being the most obvious But handling and details are very different

Leonardo offers more commands — in fact, a bewildering variety that requires two keyboard layouts to show them all! It comes with an equally confusing and sizeable manual The programming is mostly BASIC, and the main fault is a deathly slow cursor speed Line drawing is strangely complex, and the whole process takes ages The program is generally user anfriendly, which is a shame, because it offers a lot of useful features ellipses, arcs, clever shading functions and a scroll feature The problem is, with so many features, it takes five minutes to find the right key for the function you want

Leonardo offers no UDG designer as such Instead UDGs are copied from the normal picture screen, and thus have to be designed actual size, a bit fiddly However, combined with Leonardo's excellent user programs, whole areas of screen can be copied into a bank of up to 790 characters, so large sprites can be created and used in games The user program also offers storage and recalls of whole screens, which can be divided up by the user in his programs as he wishes — particularly good for adventures, animation or platform style screens

Light Magic is machine code, and the cursor glides effortlessly around at a user chosen speed The baffling number of keys in Leonardo does not occur here, prevented by using various menus and modes

The main option is screen editor, which presents a blank screen for design Pressing 'enter' changes modes Pen mode allows etch-a-sketch style drawing, plus a wonderful feature called 'band' which draws a line, moving quickly on screen, between the cursor and the last set point The fact that it is moving means angles and slopes are easily set

Brush mode allows 20 sizes, and 10 types of brush, including an air brush simulator Block mode allows you to cut areas from the screen and move them smoothly around Text allows normal or double sized writing with ease, and UDG mode is the same using characters from six selectable banks Although many of these features are available in Leonardo, here they are much more user friendly UDGs can be designed in a separate part of the program which presents an 8 x 8 grid, like good old 'Horizons', but naturally more sophisticated

Light Magic is easy and fun to use, and with the brush and band facility it allows more artistic freedom Leonardo is slower, but technically more proficient and useful — if you can plough through the manual Certainly the user program is excellent, and it costs half as much **P.S.**

Leonardo

Price £7 95

Publisher: Creative Sparks

Address: Department MO, 296 Farnborough Rd, Farnborough Hampshire GU14 7NF

SPECTRUM

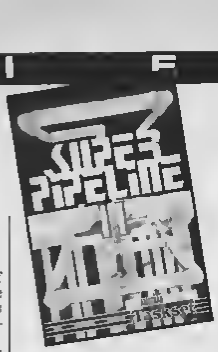
Light Magic

Price: £14 95

Publisher: New Generation

Address: FREEPOST, Bath BA2 4TD

SPECTRUM



Super Pipeline II

I really liked this You are Foreman Fred, charged with maintaining the pipeline which carries water from the top of the screen to the bottom for the purpose of filling barrels Not that it's a straight pipe! It twists and turns like a plumber's nightmare In order not to get your hands dirty, you collect workers as they troll about the site, and when you do, they follow you

Unfortunately, the place is beset with flaming blowlamps, electric drills, spanners, showers of tacks, the six-legged Venusian pipe spider, and, in a crawl-on role, the Hard Case Lobster which can only be shot from behind All these meanies cause breaks in the line which must be repaired by leading one of your workers to it Touch the marauding meanies and it's (shower?) curtains But you can fight back with your laser, and use the workers as shields Keep the pipe running, and you get promoted to an even more complicated tangle

All of this frantic action is accompanied by rather tasteful music, perhaps a spring quartet playing (watering-can) Handel, and the pipe-work is drawn in clever shades which give the impression of depth The characters, though rather flickery which is disappointing, are very amusing In fact, humour permeates this game, down to the C5 and lecherous worker in-between screens

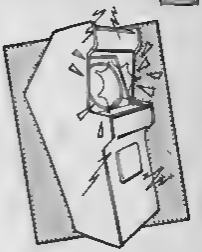
A demo mode is provided, as are keyboard, joystick and multiple life options I would have flipped had the movement been up to Sorcery standards, even so, I'm swamped! **D.M.**

Price: £8 90

Publisher: Taskset

Address: 13 High St, Bridlington YO16 4PR

AMSTRAD



Knockout

Some time ago I laboriously typed in a BASIC listing for a boxing game which gave a bird's-eye view of a boxing ring The boxers could only throw left or right hooks but could move all around the ring Knockout from Alligata reminds me of this game except that the view is from a ringside seat and the opponents can only move left and right across the centre of the ring

Admittedly the graphics are very good but the entertainment value is limited, in many ways I prefer my BASIC game

The opening screen allows you to choose a game against the computer or a two player game The stamina of the boxers may be set and, in the one-player game the movements of your opponent can be preset

Above this selection menu the name of the game revolves in a horizontal plane, into and out of the TV screen A nice touch which is unfortunately not supported by the rest of the game

At the end of each round the bell sounds and a suitable notice floats across the screen The top of the screen indicates the state of each man by two rows of chevrons extending from right and left towards a KO logo in the centre of the screen When one of the player's chevrons reach the logo, their boxer hits the deck and the game is over

After three preliminary bouts, you get a crack at the European championship A successful result will give you a Championship which is contained on side two of the cassette **E.D.**

Price: £6 95

Publisher. Alligata

Address 1 Orange St, Sheffield S1 4DW

C64

SPECTRUM GAME

TEST YOUR REFLEXES

Robert Symthe's game has you testing the speed of your reactions. It's addictive!

Reflex times you on your reaction to a visual prompt. Although simple in context, the screen lay-out makes it very addictive.

Variables

- c time scored
- d number of tests
- e fastest time
- f times added together
- g average time

How it works

- **10** jump to program start
- **20-80** timer subroutine
- **100** initialise variables
- **110-220** print screen display
- **230-240** wait for key press
- **250-270** clear instructions from display
- **300-350** random pause then jump to timer subroutine
- **360-520** display time and rating
- **530-580** another go?

Please note: All the Spectrum listings in HCW are printed to a special format. All user defined characters are printed as capital letters but with an underline. In order to type them into your computer you need to place the machine in GRAPHIC mode and then press the capital letter indicated. If you follow these instructions to the letter the graphic characters will be shown on screen when you run the program.

```
 10 GO TO 100
 20 PRINT AT 10,15;"▀▀": PRINT AT 11,15;"▀▀"
 30 POKE 23672,0
 40 IF INKEY$=" " THEN  LET c=(PEEK 23672-9)/50:
GO TO 60
 50 IF PEEK 23672>100 THEN  GO TO 70
 60 GO TO 40
 70 PRINT AT 11,3; FLASH 1;"TOO LATE": BEEP .5,20
: BEEP .5,10: FOR b=1 TO 400: NEXT b: PRINT AT 11,
3;"          ": LET c=5: LET d=5
 80 RETURN
```

```
 100 BORDER 0: PAPER 0: INK 7: BRIGHT 1: CLS : LET
 e=10: LET f=0
 110 PLOT 0,175: DRAW 112,0: DRAW 0,-40: DRAW -112
,0: DRAW 0,40: PLOT 0,147: DRAW 112,0
 120 PLOT 184,175: DRAW 71,0: DRAW 0,-104: DRAW -7
2,0: DRAW 0,104: PLOT 184,147: DRAW 71,0
 130 PLOT 112,103: DRAW 32,0: DRAW 0,-32: DRAW -32
,0: DRAW 0,32
 140 PRINT AT 0,0; OVER 1;" TIME   (SEC)": PRINT A
T 0,25; OVER 1;"RATING"
 150 PRINT AT 2,0; OVER 1;"FASTEST: 0.00": PRINT A
T 2,25; OVER 1;"EXCELLENT"
 160 PRINT AT 4,0; OVER 1;"AVERAGE: 0.00": PRINT A
T 4,25; OVER 1;"VERY GOOD"
 170 PRINT AT 6,25;"GOOD": PRINT AT 8,25;"FAIR": P
RINT AT 10,25;"POOR": PRINT AT 12,25;"BAD"
 180 PRINT AT 14,14;"0.00"
 185 PRINT AT 6,0; R.Symthe 1985
 190 PRINT AT 16,0;'REFLEX will time the speed of
  your reaction to a visual signal': PRINT AT 10,1
5; FLASH 1;"▀▀": PRINT AT 11,15; FLASH 1;"▀▀"
 210 PRINT AT 19,0;'After five short tests a ratin
g based on your average time will be displayed"
 220 PRINT #1; BRIGHT 1;AT 1,5;"PRESS <ERASE> TO S
TART"
 230 IF INKEY$=" " THEN  GO TO 250
 240 GO TO 230
 250 PRINT AT 10,15;'  ": PRINT AT 11,15;"  "
 255 PRINT AT 6,0;"                    "
 260 PRINT AT 16,0;: FOR b=1 TO 6: PRINT "
                    ": NEXT b
 270 PRINT #1; BRIGHT 1;AT 1,22;"STOP "
 280 FOR b=1 TO 200: NEXT b
 300 FOR d=1 TO 5
 310 LET r=INT (RND*1000)+500
 320 FOR x=1 TO r
 330 IF INKEY$=" " THEN  GO TO 340
 335 NEXT x: GO TO 350
 340 PRINT AT 10,3; FLASH 1;"TOO SOON": BEEP .5,20
: BEEP .5,10: FOR b=1 TO 400: NEXT b: PRINT AT 10,
3;'          ": GO TO 310
 350 GO SUB 20
 360 IF c<e THEN  LET e=c
 370 LET f=f+c: PRINT AT 10,15;"  ": PRINT AT 11,1
5;"  "
 380 FOR b=1 TO 100: NEXT b: BEEP .1,20
 382 PRINT AT 14,14;"    "
 383 IF c<.1 THEN  PRINT AT 14,14;"0";c: GO TO 386
 385 PRINT AT 14,14;c
 386 FOR b=1 TO 200: NEXT b
 390 NEXT d
 400 LET g=f/5
 410 FOR b=1 TO 10: BEEP .1,b*5: NEXT b
 420 PAUSE 20: BEEP .1,20
 425 IF e<.1 THEN  PRINT AT 2,10;e: GO TO 440
 430 PRINT AT 2,9;e
 440 PAUSE 20: BEEP .1,20
 445 IF g<.1 THEN  PRINT AT 4,10;g: GO TO 460
 450 PRINT AT 4,9;g
 460 PAUSE 20: BEEP .1,20
 465 IF g<.1 THEN  GO SUB 600: GO TO 530
 470 IF g<.11 THEN  PRINT  OVER 1; FLASH 1;AT 2,23
;"          ": GO TO 530
 480 IF g<.13 THEN  PRINT  OVER 1; FLASH 1;AT 4,23
;"          ": GO TO 530
 490 IF g<.20 THEN  PRINT  OVER 1; FLASH 1;AT 6,23
;"          ": GO TO 530
 500 IF g<.25 THEN  PRINT  OVER 1; FLASH 1;AT 8,23
;'          ": GO TO 530
 510 IF g<.30 THEN  PRINT  OVER 1; FLASH 1;AT 10,2
3;"          ": GO TO 530
 520 PRINT  OVER 1; FLASH 1;AT 12,23;"          "
 530 PRINT #1; BRIGHT 1;AT 1,22;"BEGIN"
 540 PAUSE 100
 550 BEEP .05,55: BEEP .05,50
 551 LET j$="                                    REFLE
X                                   "
 560 LET j$=j$(2 TO LEN j$)
 565 IF LEN j$=32 THEN  GO TO 550
 570 PRINT AT 18,0;j$( TO 32)
 575 BEEP .05,55: BEEP .05,50
 576 IF INKEY$=" " THEN  RUN
 580 GO TO 560
 600 PLOT 30,45: DRAW 60,60,499
 610 PRINT AT 11,4; FLASH 1;"ELITE"
 620 RETURN
```

COMMODORE '85

London's Novotel was the venue for this year's Commodore show. Here's a run down of all the new products and show gossip from Marie Curry and Dave Carlos

The sixth International Commodore Computer show got off to a great start on Friday 7th June after being opened by Nike Clark and Maggie Defreitas, two "Bond" girls

They were there to publicise the new "A View to Kill" computer game which is based on the film of the same name Domark, the publishers of the game, had a Renault 11 on their stand but didn't have any games!

This was due to duplication problems but they should be in the shops by the time that you read this

Another famous face at the show was John McEnroe, who popped in to show off his skills on International Tennis I have the feeling that it wasn't really the man himself but he was very skilled at the game, making his opponent look a very poor second

Commodore's General Manager Nick Bessey talked quite openly about the problems that the industry faced earlier this year He admitted that 1984 was a disappointment but decried the practice of price cutting He said it "did nothing to generate customer sales and even prevented sales by postponing people's decisions as they await even lower prices "

"What really matters is value for money and whether the customer believes that the manufacturer will be offering the product and servicing it for many years to come "

As we reported in last week's HCW, "there will be no price cuts" on Commodore products, instead value for money packs are to be sold in the future

Nick also gave details of the Commodore 128 which will be launched in September. He claimed that it would provide an answer to the "ever narrowing gap between the home and professional computer", saying "While it is a sophisticated games machine it is also a powerful business tool "

There were no price details available except that it will be considerably more expensive than the Commodore 64

Paul Welch, marketing and consumer sales manager, made it quite clear that the current range of products was not going to be neglected in favour of the new breed "waiting in the wings"

Commodore's 128 due September

In particular the Commodore 64 will be supported and marketed "through to the end of 1986" He also made it clear that the 128 was not being launched until Commodore had enough stocks to meet demand

The machine features 40 or 80 column display, 48K of ROM, 128K of RAM — expandable to 512K — and an enhanced BASIC, Version 7 0

There were a number of pre-production machines at the show and they caused a good degree of interest The main problem evident in those machines was mains instability, it could have been the exhibition supply but they were crashing with amazing regularity

The show itself seemed to echo the nervousness of the industry in some ways Whilst there were a good number of companies showing off their current range there were very few new launches Music Sales was busy for the whole weekend demonstrating its Sound Sampler which was the "Hit of the Show" as far as I'm concerned

Mike Mahoney of Alligata commented that there was just the right mix of stands for the number of visitors There was certainly just enough room to move around which is a change at such events

For those Commodore users who didn't make it down to the big city we present a quick run down of the new products below

Taking it's first few steps, on the **Valiant Designs** stand, was the remote controlled Valiant turtle

Aimed mainly at schools but with great fascination for any children this beast was shown drawing pictures and even dancing to the music on the Llamasoft stand directly opposite

The complete system, including a Commodore LOGO program, is now available for £150 plus VAT.

Valiant Designs Park Hse, 140 Battersea Park Rd, London SW11 4NB

The Datex MS 1 Graphic Mouse from **EEC Distribution Services** was also on show.

EEC claims that it is the first fully optical mouse designed for the C64.

It comes with a user manual and software on cassette and disc. According to EEC, it turns your computer into a more friendly, easy-to-use device.

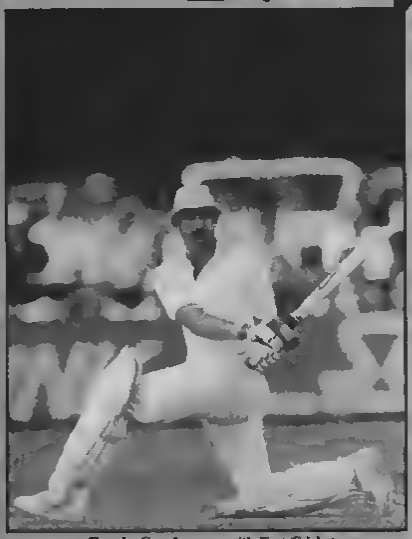
EEC Distribution Services, 14 Wester Parade, Great North Rd, Barnet, Herts EN5 1AD

Commodore (UK) launched its new game International Tennis at the show last week It is the most recent in Commodore's International Sports series which also includes International Soccer and International Baseball

Playing a match consists of the best of three sets and the game is played on "grass" to normal international rules A tie-breaker operates automatically when necessary and a scoreboard records progress and signals faults

It is available on cassette priced at £5 99

Commodore, 1 Hunters Rd Weldon, Corby, Northants NN17 1QX



Twack, Gooch scores with Test Cricket

Audiogenic launched Graham Gooch's Test Cricket at the show and the famous cricketer was present on the last day of the show to help promote the game.

Audiogenic describes the game as the perfect summer game for '85, complete with the twack of leather and the appreciation of an enthusiastic crowd. It costs £9.95.

Also launched at the show were three games for the C16: Art Master (£9.95), 3-D Glooper (£4.95) and Kaktus (£4.95).

Audiogenic, 39 Suttons Industrial Park London Rd Reading, Berks RG6 1AZ

With the introduction of two new products, **Commodore** has completed its range of music software packages for the C64.

The Commodore Sound Studio, £14.95, is claimed to be capable of turning the C64 into a professional music synthesiser and multi-track sequencer.

The Sound Studio makes it possible to record music either in realtime from the keyboard or input notes individually and add the timing later. The package contains three separate soundtracks upon which an arrangement can be built up and has an easy to use edit facility.

The Sampler package is aimed at electronic music enthusiasts and, according to Commodore, it allows the user to produce many of the effects heard on the latest records with the use of digitally recorded sound played back in a variety of ways by the computer.

The Sound Studio and Sampler were designed by Music Sales Ltd especially for the C64. The company was also responsible for the Music Maker and Play-along Album series.

Play along albums from Music Sales

JCL Software's show display contained several new products.

The Speedpen 64 is a word-processor for the C64 and is claimed to be an easy to use efficient and powerful word processor. It is supplied on disc and costs £17.50.

The Eprom Programmer Mk3 has disc based software with all the essential functions for fast and reliable EPROM programming, according to JCL. It is priced at £299.

JCL also produces the HS-64 Assembler and Program Development Aid (£55), the IEEE Bus Adaptor for the 64 (£59 excluding VAT), the Business ROM (£50), the 700 Workshop (£39 excluding VAT) and the 700 Assembler (£50 excluding VAT).

JCL Software, 1 Sheffield Rd, Southborough, Tunbridge Wells, Kent TN4 0PD

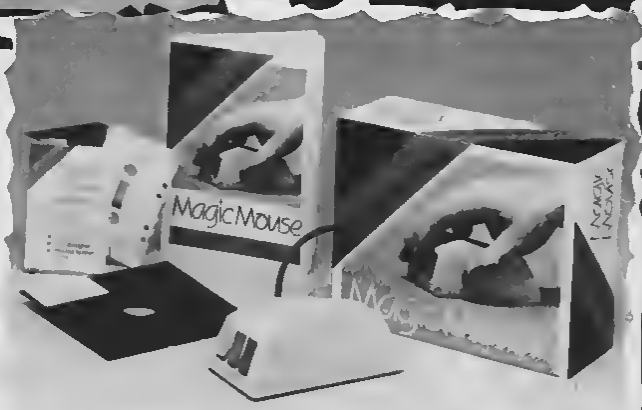
SMC Supplies demonstrated its most recently publicised product the Magic Mouse.

According to the makers, the mouse is a high quality peripheral which enables the C64 user to create sophisticated graphics, utilising all of the functions incorporated in the product.

For £59.95 you can buy a package containing a hi-res designer, sprite generator, and character generator, plus software which enables the user to integrate creative graphics into his own programs.

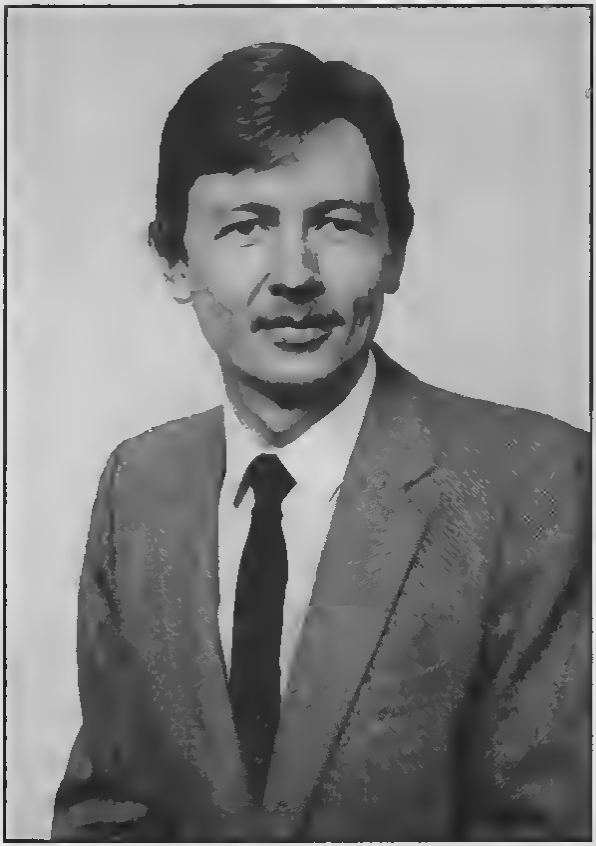
Also on view was the Connexions range of cables and the Phonemark Commodore compatible cassette data recorder.

SMC Supplies, 11 Western Parade, Great North Rd, Barnet, Herts EN5 1AD



Mouse magic from SMC

WALLOWING IN THE MUD



David Laycock of British Telecom New Information Services

MUD 2, the interactive adventure game which will be available over the phone, is to be launched in September. Marie Curry spoke to David Laycock of BT's information service about the new project

Adventure fanatics will soon have a new experience available to them, when British Telecom New Information Services and Muse Ltd launch MUD 2 at the PCW show in September of this year. Muse was formed by Simon Dally of Century Books, and MUD authors Richard Bartle and Roy Trubshaw.

MUD stands for Multi-User Dungeon and the original version of the game has been running on the Essex University main frame computer for the past four years. Early this year it became available to Compunet users and now adventurers all over the country will be able to try their hand at MUD 2, a much larger version of the original. MUD 2 will have about 1000 locations as opposed to the 400 of its parent game.

The name of the game speaks for itself. The concept is very simple — although there have inevitably been a few problems in putting the idea into practice. It is hoped that, when MUD 2 is first launched it will be able to cope with up to 50 players simultaneously and this figure will be improved upon as soon as possible. The 50 players will enter the land and attempt to get through all the obstacles to eventually become a Grand Wizard. It is an interactive adventure so that players may meet each other and either help

Richard Bartle — one of the authors of MUD

or hinder their colleagues in their progress through the land

David Laycock of British Telecom's New Information Services is confident that the new idea will prove extremely popular with computer users He said "There is a vast computing market out there and people are becoming blasé about the existing type of games Players are now looking for something very different and original and MUD is certainly that "

To play MUD you will need to buy the MUD starter pack which will cost around £20 The pack will contain an account number and password, a booklet explaining the game to give you feel of the world of MUD and a colour map showing part of the land The first few hours on MUD are included in the pack and after that you will have to buy credits which will give you one hour's play for £2, although there will be discounts for players who buy their credits in bulk

MUD 2 will initially be based on a London Vax system and players will be able to access the game with a modem Baud rate will be 300/300 and 1200/75 and the game will run in off peak telephone hours between 6pm and 8am

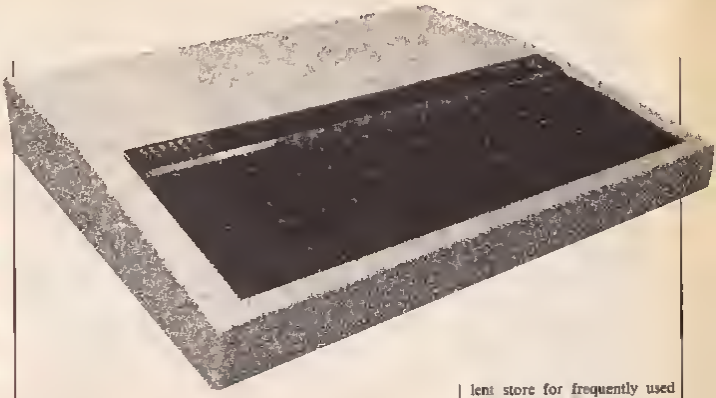
"At this stage everything is still being finalised", explained Mr Laycock, "but the eventual goal will not be a pot of gold The players will aim to become a grand wizard and to do this they must amass points to become more and more powerful " A wizard will be able to cast spells to influence other players and he can be nice or nasty depending on his whim. "We will have to limit the powers of the wizards to some extent otherwise things could get out of hand," he commented "For instance someone could pick up a dragon and put it at the entrance of the game so that everyone trying to come in would die instantaneously. That's the sort of thing we need to prevent but apart from this we really won't be putting any restrictions on players at all "

According to Mr Laycock it will be advisable for players to form alliances with each other. "If they co-operate with each other then they will of course get on better in the game MUD 2 is truly interactive because there is at least one obstacle which cannot be overcome by one player alone, although we're not revealing what this is " he said

Another added complication for players is the presence of computer generated beings or mobiles Mr Laycock was very enthusiastic about these "We will be giving the mobiles artificial intelligence and it will be very difficult for players to ascertain whether the beings they meet are mobiles or real people "

Asked about the New Information Service's future plans, Mr Laycock said: "MUD 2 will, of course, be added to and developed, it is by no means a static game We are also looking at ideas for similar projects in the future We may move away from the traditional dungeon style of adventure and perhaps do a space exploration game. There are many possibilities "

PERIPHERAL



Richard Sealey has been looking closely at Softlife's EPROM programmer. Read on to find out what he thinks

Softlife EPROM Programmer

One of the most flexible and well-loved features of the BBC is its ability to become the machine of your dreams by simply fitting extra sideways ROM chips

Using this sytem the machine can become a powerful word processor terminal, a machine code monitor or even a business machine running CP/M.

Someone has to write and then produce the sideways ROMs on which this flexibility is based An EPROM programmer is the machine that takes the programs and "blows" them into the chips which you plug in

I had an earlier version of this programmer and my main criticism then was that it was very slow This is the new improved version with superfast programming Another difference is that a larger range of chip types can be programmed using the one unit

If design quality is related to simplicity then this unit is one of the best around There is only one cable, plugging into the BBC user port, and no switches or other items to spoil the plain white case It is very difficult to make any type of mistake, as I have been known to do on other programmers

The software is supplied on an EPROM (2764) and is read from this device using a short program contained in the manual You are advised to make a number of back-up copies of the program and I can echo that advice — if you lose the program you're left with a elegant white box of no use whatsoever!

When you *RUN the program a menu appears from which you select the type of EPROM you wish to program The basic types covered are 2764 and 27128 but within each type you can also select from those needing the normal 21-volt, programming voltage and the advanced type which needs only 12 5 volts

From this menu you move to the actual programming menu This has the options shown in Table 1. Most are self-explanatory Note that in the main the programmer expects to have a file as input This is a slightly misleading concept though because the file is read from disc or cassette into RAM before programming begins Checksum enables you to see if a series of EPROMs have all been programmed with the same data

The ROM format routine is one I particularly like It allows you to store one or a series of programs on an EPROM using the BBC's *ROM format This is very similar to the cassette filing system and is a way of keeping programs in your machine permanently All you have to do is type *ROM and then LOAD, CHAIN or *RUN them as normal. It is an excellent store for frequently used utilities and this programmer makes writing this type of ROM simplicity itself

During programming itself you can assess the progress of the system by the number of stars which are output between the letters S, for start, and F for finished This is a sensible idea and gets over the problem of programming software which claims to be fast but then prints a location number every few milliseconds and thereby slows itself down!

In all a well-designed product which has a high specification and yet is simple to use The big let-down is the price I can't really accept that it needs to be so high The material cost is not too great and I have a feeling that the biggest part of the price charged is probably due to advertising If this machine were £20 cheaper I would have rated it flipped R.S.

Price: £77 05

Publisher: Softlife

Address: 7 Rose Crene, Cambridge CB2 3LL

BBC

Table 1
Softlife programming menu
P)rogram Eprom from a File
W)rite Eprom to a File
V)erify Eprom against a File
T)est Eprom is Blank
C)hecksum Eprom
S)elect Eprom Type
R)om Format
M)os Call (*)

Text Mode	Amstrad CPC464	BBC	Commodore 64	Oric/Atmos	Spectrum
Move graphics cursor to a point X,Y relative to current position	MOVER X,Y	Use PLOT or VDU 25 (see separate table)	Not applicable	CURMOV X,Y FB (see Note 2)	Not applicable
Draw a line to co-ordinate X Y from current position in colour C	DRAW X,Y,C	Set colour with GCOL, then use DRAW X,Y or PLOT or VDU 25 (see separate table)	No BASIC command	All drawing is relative Calculate offset and use command below	All drawing is relative. Calculate offset and use command below
Draw a line to a point X,Y relative to current position in colour C	DRAWR X,Y,C	As above	No BASIC command	DRAW X,Y FB (see Note 2)	DRAW INK C;X,Y
Test colour of pixel at co-ordinate X,Y	TEST (X,Y) (TESTR (X,Y) is relative version)	POINT(X,Y)	No BASIC command	POINT(X,Y) (only distinguishes if point is foreground or background)	POINT(X,Y) (only distinguishes if point is foreground or background. Use ATTR to get actual colour info)
Draw a circle, centre X Y, colour C	No BASIC command	No BASIC command	No BASIC command	CURSET X,Y FB CIRCLE R,FB (Note 2)	CIRCLE X,Y,R
Select graphics ink mode	PRINT CHR$(23);CHR$(M); M=0 Normal M=1 XOR M=2 AND M=3 OR	GCOL colour,M or VDU 18,colour,M M=0 Normal M=1 OR M=2 AND M=3 XOR M=4 Invert	Not applicable	Use FB in statement FB=0 Use background colour FB=1 Use foreground colour FB=2 Invert pixel FB=3 Do nothing (moves cursor only)	Use INVERSE and OVER commands in the plotting statement
Make logical colour L appear as physical colour P on screen	INK L,P or PRINT CHR$(28);CHR$(P); CHR$(P);	VDU 19,L,P;0; or VDU 19,L,P,0,0,0	Not applicable	Not applicable	Not applicable
Make logical colour L appear as flashing colours P1, P2 on screen	INK L P1 P2 or PRINT CHR$(28);CHR$(P1); CHR$(P2);	Use P=0 to 15 in above command (only certain pairs allowed)	Not applicable	PRINT CHR$(27);"letter"; (letter = L,M,N,O)	FLASH 1 to enable FLASH 0 to disable
Change border to colour C	BORDER C or PRINT CHR$(29);CHR$(C); CHR$(C);	Not possible	POKE 53280,C	Not applicable	BORDER C
Change border to flashing colours C1, C2	BORDER C1,C2 or PRINT CHR$(29);CHR$(C1); CHR$(C2);	Not possible	Not applicable	Not applicable	Not applicable
Restore default logical/ physical colour values	Not a BASIC command	VDU 20	Not applicable	Not applicable	Not applicable
Sound a beep	PRINT CHR$(7);	PRINT 7	Use sound command	PRINT CHR$(7);	Use sound command

NOTE 1 The low-resolution text screen is the default and occupies memory from 1024 to 2023 decimal under normal circumstances. Setting up a high-res screen is done by setting flags in control registers. Look for PEEKs and POKEs involving locations 56576, 648, 56, 88, 50 (to move BASIC out of the way), 53272 (to point to screen RAM), and 53265 (to switch to high resolution mode). Screen RAM now occupies 8192 to 16191 decimal.

entry in the above table for full details.

NOTE 3. Commodore 64 user-defined graphics involve copying the character definitions into RAM and POKEing new data over the redefined ones. Look for PEEKs and POKEs involving locations 1 and 56334 (to alter the I/O state), blocks starting at 5120, 12288 or 14336 (popular places to store the new set), and 53272 (to point to the new character set)

TABLE 2 : BBC MICRO PLOT CODES

NOTE. PLOT K,X,Y is the same as VDU 25,K,X;Y;

K	EFFECT
0	Move relative to last point (no change on screen)
1	Draw line relative in current graphics foreground colour
2	Draw line relative in logical inverse colour
3	Draw line relative in current graphics background colour
4-7	As 0-3 but to absolute X,Y
8-15	As 0-7 but with last point in the line omitted in 'inverting actions'
16-23	As 0-7 but with a dotted line
24-31	As 8-15 but with a dotted line
32-63	Reserved for graphics extension ROM (if it ever arrives!)
64-71	As 0-7 but only a single point is plotted
72-79	Fill sideways on background colour
80-87	As 0-7 but plot and fill a triangle. vertices are co-ords given and last two points visited by graphics cursor
88-95	Fill right on non-background colour
96-255	Reserved for graphics extension ROM

ROLL THOSE DICE

Trust to luck in K Henderson's dice game

This program is a version of the dice game Yahtzee for the Commodore 64, following the rules of the original game.

The program is in BASIC with a short machine code routine to produce a tone when a key is pressed.

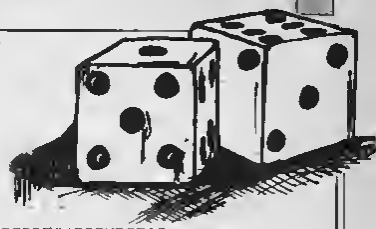
Variables

- **A** number of players
- **W** current turn
- **V** current player
- **E** current throw
- **F** dice number (1-5)
- **X(1)-X(5)** value thrown on dice
- **AS(1,1)** score line titles
- **A(1,1)** score line values
- **UT(1)** score values
- **LT(1)** score values
- **IS(1)-IS(5)** intermediate score values, used to sort dice

Other variables are used as markers for sections of the game.

Conversion for other Commodore machines would require changes for screen size (lines 20-90 and 15000-1560) and for screen memory locations (H and 1 in line 2000 and lines 2070-2130)

```
5 GOSUB9000:SYS49152
10 PRINTRND(-TI):"[illegible]":POKE53280,5:POKE53281,12
20 PRINT"[illegible]
30 PRINT"[illegible]
40 PRINT"[illegible]"
50 PRINT"[illegible]"
60 PRINT"[illegible]"
70 PRINT"[illegible]"
80 PRINT"[illegible]"
90 PRINT"[illegible]"
100 PRINTSPC(13)"[illegible] K.HENDERSON"
110 FORZ=1TO1000:NEXTZ:PRINTSPC(10)"[illegible]INSTRUCTIONS ? (Y/N)"
120 GETZ$:IFZ$<>"Y"ANDZ$<>"N"THEN120
130 IFZ$="N"THEN150
140 GOSUB500
150 POKE53280,10:POKE53281,3:INPUT"[illegible]UMBER OF
 PLAYERS";X
160 IFX<1THEN150
170 DIMA$(13,X),A(13,X),UT(X),LT(X),Q(X),J(X),Q$(X),M(X),U$(X)
,U(X)
175 GOSUB1000:POKE53280,5:POKE53281,12
180 FORW=1TO13:FORV=1TOX
190 C=0:O=0:GOTO3510
200 E=1:GOSUB1500
```



```
210 FORF=1TO5:X(F)=INT(RND(1)*6+1):GOSUB2000:NEXTF
220 GOSUB7000
230 PRINT"[RVS]                    ","THROW AGAIN ? (Y/N)"
240 GET Z$:IFZ$<>"N"ANDZ$<>"Y"THEN240
250 IFZ$="N"THEN310
260 IFZ$="Y"THENGOSUB2500
270 E=E+1:GOSUB1500:FORF=1TO5:GOSUB2000:NEXTF
280 GOSUB7000
290 IFE=3THEN310
300 GOTO230
310 PRINT"[RVS]                    "SPC(14)"[RVS]TO MARK SCORE":GOSUB5510
320 G=0:GOSUB5510:GOTO4000
330 NEXTV,W
340 GOTO6000
499 REM ***INSTRUCTIONS***
500 POKE53281,12:PRINTCHR$(14)
510 O=1:GOSUB7500
540 PRINT"[RVS] [♦]||♦[RVS]!' IS A GAME OF CHANCE IN WHICH  POINTS ARE ACCUMULATED ON";
550 PRINT" THE THROW OF                FIVE DICE."
560 PRINT"[RVS]EACH PLAYER HAS 13 TURNS IN A GAME AND ASCORE MUST BE MARKED ON";
570 PRINT" EACH TURN. ZERO   IS MARKED IF NO VALID SCORE IS MADE."
580 PRINT"[RVS]UP TO THREE THROWS, OF ONE OR MORE DICE,          MAY BE MADE IN ";
590 PRINT"EACH TURN";:GOSUB5550
600 GOSUB7500
630 PRINT"[RVS]POINTS ARE AWARDED AS FOLLOWS:-          [RVS]FOR EACH TURN SCORED IN ";
640 PRINT"THE  UPPER TABLE,  THE SCORE IS THE TOTAL VALUE OF DICE          ";
650 PRINT"SHOWING THE NUMBER SCORED.[RVS]"
660 PRINT"FOR TURNS SCORED AS 3 OR 4 OF A KIND OR   AS 'CHANCE', THE SCORE IS";
670 PRINT" THE TOTAL              VALUE OF ALL FIVE DICE."
680 PRINT"[RVS]ANY COMBINATION OF NUMBERS MAY BE SCORED                AS 'CHANCE'."
690 GOSUB5550
700 GOSUB7500
730 PRINT"[RVS]OTHER SCORES:-[RVS]"
740 PRINT"FULL  HOUSE",,"25":PRINT"(3 OF A KIND + 2 OF A KIND)"
750 PRINT"[RVS]LOW RUN    ",,"30":PRINT"(1 TO 4,[RVS]2 TO 5 OR 3 TO 6)"
760 PRINT"[RVS]HIGH RUN   ",,"40":PRINT"(1 TO 5 OR 2 TO 6)"
770 PRINT"[RVS] [♦]||♦[RVS]!  ",,"50":PRINT"(5 OF A KIND)":GOSUB5550
780 GOSUB7500
810 PRINT"[RVS]BONUS POINTS:":PRINT"[RVS]FOR  UPPER TABLE SCORE","35 POINTS"
820 PRINT"EXCEEDS 62"
830 PRINT"[RVS]FOR SECOND AND",,"100 POINTS":PRINT"[RVS]SUBSEQUENT  [♦]||♦[RVS]!S"
840 PRINT"[RVS] THE COMPUTER WILL ADD THE SCORES AND   DISPLAY THE GAME RESULT ";
850 PRINT"AND THE MATCH   RUNNING TOTALS AT THE END OF EACH GAME."
860 PRINT"     [♦] MATCH CONSISTS OF SIX GAMES."
865 PRINT"[RVS][RVS][RVS][RVS][RVS][RVS](RVS-1) - [RVS]ROUND [TWO]"
866 PRINT"[RVS][RVS][RVS][RVS][RVS][RVS](RVS-3) - [RVS]ROUND [FIVE]"
870 GOSUB5550:PRINTCHR$(142):RETURN
999 REM ***INITIALIZE VARIABLES & STRINGS***
1000 FORV=0TOX:A$(1,V)="A ONES   [RVS]":A$(2,V)="B TWOS   [RVS]":A$(3,V)="C THREES [RVS]"
1010 A$(4,V)="D FOURS  [RVS]":A$(5,V)="E FIVES  [RVS]":A$(6,V)="F SIXES  [RVS]"
1020 A$(7,V)="G 3 OF A KIND [RVS]":A$(8,V)="H 4 OF A KIND [RVS]"
1030 A$(9,V)="I FULL HOUSE  [RVS]":A$(10,V)="J LOW RUN     [RVS]"
1040 A$(11,V)="K HIGH RUN    [RVS]":A$(12,V)="L YAHTZEE!    [RVS]",
1050 A$(13,V)="M CHANCE      [RVS]":FORB=1TO13:A(B,V)=0:NEXTB:UT(V)=0:LT(V)=0
1055 M(V)=0
1060 G(V)=0:J(V)=0:NEXTV:UT$="[RVS]UPPER TOTAL":LT$="[RVS]LOWER TOTAL"
1070 YO$="[RVS]YOUR DICE:[RVS]":R$="[RVS]":AG$="[RVS]ANOTHER GAME ? (Y N)":RETURN
1498 REM ***PRINT DICE SHAPES***
1500 PRINT"[RVS]";
1510 PRINT"[RVS]     TURN";W;"   PLAYER";V;"   THROW";E
1520 PRINT"[RVS]"
1530 PRINT"
1540 FOR0=1TO3:PRINT"     |   |   |   |   |   |   |   |   |":NEXTB
```

```
1550 PRINT"     └──┘   └──┘   └──┘   └──┘   └──┘"
1560 PRINT"      █1      2      3      4      5█'|RETURN
1999 REM ***DISPLAY SCORES***
2000 H=1263+(F*7):I=H+54272
2010 IFX(F)=1THENGOSUB2100:RETURN
2020 IFX(F)=2THENGOSUB2070:GOSUB2130:RETURN
2030 IFX(F)=3THENGOSUB2070:GOSUB2100:GOSUB2130:RETURN
2040 IFX(F)=4THENGOSUB2070:GOSUB2090:GOSUB2110:GOSUB2130:RETURN
2050 IFX(F)=5THENGOSUB2070:GOSUB2090:GOSUB2100:GOSUB2110:GOSUB2130:RETURN
2060 IFX(F)=6THENGOSUB2070:GOSUB2080:GOSUB2090:GOSUB2110:GOSUB2120:GOSUB2130:RET
URN
2070 POKEH-41,81:POKEI-41,9:RETURN
2080 POKEH-1,81:POKEI-1,9:RETURN
2090 POKEH+39,81:POKEI+39,9:RETURN
2100 POKEH,81:POKEI,9:RETURN
2110 POKEH-38,81:POKEI-38,9:RETURN
2120 POKEH+1,81:POKEI+1,9:RETURN
2130 POKEH+41,81:POKEI+41,8:RETURN
2499 REM ***RETHROW DICE ?***
2500 FORF=1TO5:PRINT"████████████████","██THROW DICE";F;"█ AGAIN ? (Y/N)"
2510 GETZ$:IFZ$="N"THEN2540
2520 IFZ$="Y"THENX(F)=INT(RND(1)*6+1):GOTO2540
2530 GOTO2510
2540 NEXTF:RETURN
2999 REM ***PUT DICE IN DESCENDING ORDER***
3000 FORF=1TO5:IS(F)=0:NEXTF
3010 FORF=1TO5:FORG=1TO5
3020 IFX(F)>IS(G)THENG=G:G=5
3030 NEXTG
3040 FORI=5TOG+1STEP-1:IS(I)=IS(I-1):NEXTI
3050 IS(G)=X(F):NEXTF
3060 IS=IS(1)+IS(2)+IS(3)+IS(4)+IS(5):RETURN
3499 REM ***DISPLAY SCOREBOARD***
3500 D=1
3510 PRINT"█────────────────────────────────────";
3520 PRINTSPC(11);"█SCORES - PLAYER";V
3530 PRINT"█────────────────────────────────────"
3540 PRINT,A$(1,V);A(1,V)
3550 PRINT,A$(2,V);A(2,V)
3560 PRINT,A$(3,V);A(3,V)
3570 PRINT,A$(4,V);A(4,V)
3580 PRINT,A$(5,V);A(5,V)
3590 PRINT,A$(6,V);A(6,V)
3600 UT(V)=A(1,V)+A(2,V)+A(3,V)+A(4,V)+A(5,V)+A(6,V):PRINT,UT$;UT(V);"█"
3610 PRINT,A$(7,V);A(7,V)
3620 PRINT,A$(8,V);A(8,V)
3630 PRINT,A$(9,V);A(9,V)
3640 PRINT,A$(10,V);A(10,V)
3650 PRINT,A$(11,V);A(11,V)
3660 PRINT,A$(12,V);A(12,V)
3670 PRINT,A$(13,V);A(13,V)
3680 LT(V)=A(7,V)+A(8,V)+A(9,V)+A(10,V)+A(11,V)+A(12,V)+A(13,V):PRINT,LT$;LT(V)
3690 IFC=1THEN3730
3700 PRINTSPC(10);"██ PRESS █ 'P' █ TO PLAY ██"
3710 GETZ$:IFZ$<>"P"THEN3710
3720 IFC=0THENC=1:GOTO200
3730 IFG=0THEN3770
3740 PRINTSPC(14);"██NEXT PLAYER████████████PRESS SPACE█"
3750 GETZ$:IFZ$<>" "THEN3750
3760 GOTO330
3770 PRINT"████████████████████",YG$;X(1);X(2);X(3);X(4);X(5);"█"
3780 INPUT"████████████████████████████████WHICH SCORE LINE ";Y$
3800 IFLEN(Y$)>1ORASC(Y$)<65ORASC(Y$)>77THEN3510
```

```
3810 IFD=1THEN4890
3820 RETURN
3999 REM ***CHECK SCORE LINE***
4000 FORB=1TO13:IFY$=MID$(A$(B,V),2,1)THENB=13:GOTO3508
4005 NEXTB
4010 IFY$=LEFT$(A$(1,V),1)THENGOSUB4500:A$(1,V)=R$+A$(1,V)
4020 IFY$=LEFT$(A$(2,V),1)THENGOSUB4520:A$(2,V)=R$+A$(2,V)
4030 IFY$=LEFT$(A$(3,V),1)THENGOSUB4540:A$(3,V)=R$+A$(3,V)
4040 IFY$=LEFT$(A$(4,V),1)THENGOSUB4560:A$(4,V)=R$+A$(4,V)
4050 IFY$=LEFT$(A$(5,V),1)THENGOSUB4580:A$(5,V)=R$+A$(5,V)
4060 IFY$=LEFT$(A$(6,V),1)THENGOSUB4600:A$(6,V)=R$+A$(6,V)
4070 IFY$=LEFT$(A$(7,V),1)THENGOSUB4620:A$(7,V)=R$+A$(7,V)
4080 IFY$=LEFT$(A$(8,V),1)THENGOSUB4640:A$(8,V)=R$+A$(8,V)
4090 IFY$=LEFT$(A$(9,V),1)THENGOSUB4710:A$(9,V)=R$+A$(9,V)
4100 IFY$=LEFT$(A$(10,V),1)THENGOSUB4750:A$(10,V)=R$+A$(10,V)
4110 IFY$=LEFT$(A$(11,V),1)THENGOSUB4820:A$(11,V)=R$+A$(11,V)
4120 IFY$=LEFT$(A$(12,V),1)THENGOSUB4850:A$(12,V)=R$+A$(12,V)
4130 IFY$=LEFT$(A$(13,V),1)THENA(13,V)=A(13,V)+1+A(2)+X(3)+X(4)+X(5):A$(13,V)=R$+A$(1
3,V)
4140 G=1:GOTO3510
4499 REM ***COMPUTE SCORE***
4500 FORF=1TO5:IFX(F)=1THENA(1,V)=A(1,V)+1
4510 NEXTF:RETURN
4520 FORF=1TO5:IFX(F)=2THENA(2,V)=A(2,V)+2
4530 NEXTF:RETURN
4540 FORF=1TO5:IFX(F)=3THENA(3,V)=A(3,V)+3
4550 NEXTF:RETURN
4560 FORF=1TO5:IFX(F)=4THENA(4,V)=A(4,V)+4
4570 NEXTF:RETURN
4580 FORF=1TO5:IFX(F)=5THENA(5,V)=A(5,V)+5
4590 NEXTF:RETURN
4600 FORF=1TO5:IFX(F)=6THENA(6,V)=A(6,V)+6
4610 NEXTF:RETURN
4620 GOSUB3000
4630 IFIS(1)=IS(2)ANDIS(1)=IS(3)THENA(7,V)=IS:RETURN
4640 IFIS(2)=IS(3)ANDIS(2)=IS(4)THENA(7,V)=IS:RETURN
4650 IFIS(3)=IS(4)ANDIS(3)=IS(5)THENA(7,V)=IS
4660 RETURN
4670 GOSUB3000
4680 IFIS(1)=IS(2)ANDIS(1)=IS(3)ANDIS(1)=IS(4)THENA(8,V)=IS:RETURN
4690 IFIS(2)=IS(3)ANDIS(2)=IS(4)ANDIS(2)=IS(5)THENA(8,V)=IS
4700 RETURN
4710 GOSUB3000
4720 IFIS(1)=IS(2)ANDIS(3)=IS(4)ANDIS(3)=IS(5)THENA(9,V)=25:RETURN
4730 IFIS(1)=IS(2)ANDIS(1)=IS(3)ANDIS(4)=IS(5)THENA(9,V)=25
4740 RETURN
4750 GOSUB3000
4760 IFIS(1)=IS(2)+1ANDIS(2)=IS(3)+1ANDIS(3)=IS(4)+1THENA(10,V)=30:RETURN
4770 IFIS(1)=IS(2)+1ANDIS(2)=IS(3)+1ANDIS(3)=IS(5)+1THENA(10,V)=30:RETURN
4780 IFIS(1)=IS(2)+1ANDIS(2)=IS(4)+1ANDIS(4)=IS(5)+1THENA(10,V)=30:RETURN
4790 IFIS(1)=IS(3)+1ANDIS(3)=IS(4)+1ANDIS(4)=IS(5)+1THENA(10,V)=30:RETURN
4800 IFIS(2)=IS(3)+1ANDIS(3)=IS(4)+1ANDIS(4)=IS(5)+1THENA(10,V)=30
4810 RETURN
4820 GOSUB3000
4830 IFIS(1)=IS(2)+1ANDIS(2)=IS(3)+1ANDIS(3)=IS(4)+1ANDIS(4)=IS(5)+1THENA(11,V)=
40
4840 RETURN
4850 IFX(1)=X(2)ANDX(1)=X(3)ANDX(1)=X(4)ANDX(1)=X(5)THENA(12,V)=50
4860 RETURN
5499 REM ***'SPACE' TO CONTINUE***
5500 FORZ=1TO1000:NEXTZ
5510 PRINT"[illegible]";SPC(14);"[illegible] PRESS SPACE [illegible]"
5520 GETZ$:IFZ$<>" "THEN5520
5530 RETURN
```

```
5550 FORZ=1TO1000:NEXTZ
5560 PRINT"[illegible]'SPC(14)"[illegible]"
5570 GETZ$:IFZ$<>" "THEN5570
5580 RETURN
5999 REM ***SCORES/END OF GAME***
6000 FORV=1TOX:IFUT(V)>62THENUT(V)=UT(V)+35
6010 IFJ(V)=0THENJ(V)=1
6020 Q(V)=UT(V)+LT(V)+((J(V)-1)*100):NEXTV
6030 B=1:FORV=1TOX:Q$(V)=STR$(B)+"[illegible]"+STR$(Q(V))
6040 N(V)=Q(V):B=B+1:NEXTV
6050 K=0
6060 FORV=1TOX:IFM(V-1)>=M(V)THEN6110
6070 U$=Q$(V-1):U=M(V-1)
6080 Q$(V-1)=Q$(V):M(V-1)=M(V)
6090 Q$(V)=U$:M(V)=U
6100 K=1
6110 NEXTV
6120 IFK=1THEN6050
6130 PRINT"[illegible]";
6140 PRINT,"[illegible]PLAYER[illegible]","[illegible]SCORE[illegible]"
6150 PRINT"[illegible]"
6160 FORV=0TOX-1
6170 IFX<10THENPRINT
6180 PRINT,"[illegible]";Q$(V):NEXTV
6190 GOSUB5500:GOSUB6500:POKE53280,0:POKE53281,12
6200 PRINT"[illegible]",A6$
6210 GETZ$:IFZ$="Y"THENPRINT"[illegible]":GOTO175
6220 IFZ$="N"THENPOKE53280,14:POKE53281,6:PRINT"[illegible]":END
6230 GOTO6210
6499 REM ***END GAME/MATCH TOTALS***
6500 L=L+1:IFL=6THENA6$="[illegible]ANOTHER MATCH ? (Y/N)"
6510 IFL>6THENL=1:FORV=1TOX:QT(V)=0:NEXTV
6520 FORV=1TOX:QT(V)=QT(V)+Q(V):NEXTV
6530 A$="[illegible]":IFX>7THENA$=""
6540 B=0:FORV=0TOX:AA$(V)="[illegible]"+STR$(B)+"[illegible]"+STR$(QT(V)
6550 AA(V)=VAL(AA$(V)):B=B+1:NEXTV
6560 K=0
6570 FORV=1TOX
6580 IFAA(V-1)>=AA(V)THEN6630
6590 U$=AA$(V-1):U=AA(V-1)
6600 AA$(V-1)=AA$(V):AA(V-1)=AA(V)
6610 AA$(V)=U$:AA(V)=U
6620 K=1
6630 NEXTV
6640 IFK=1THEN6580
6650 T$="[illegible]        TOTALS AT END OF GAME "+STR$(L)
6660 IFL=6THENT$="[illegible]          END OF MATCH TOTALS"
6670 PRINT"[illegible]";
6690 PRINTT$
6690 PRINT"[illegible]"
6700 PRINT,"[illegible]PLAYER","[illegible]SCORE[illegible]"
6710 FORV=1TOX
6720 PRINTA$,"[illegible]"JAA$(V):NEXTV
6730 GOSUB5500:RETURN
6999 REM ***CHECK FOR YAHTZEE!***
7000 IFX(1)=X(2)ANDX(1)=X(3)ANDX(1)=X(4)ANDX(1)=X(5)THEN7020
7010 RETURN
7020 PRINTSPC(15)"[illegible] YAHTZEE! [illegible]":J(V)=J(V)+1
7030 POKE53281,15:POKE53280,16:GOSUB8500
7040 POKE53280,5:POKE53281,12:RETURN
7499 REM ***INSTRUCTIONS PAGE TITLES***
7500 PRINT"[illegible]":FORB=1TO40:PRINT"*";:NEXTB
7510 PRINT"      [illegible] - ")O
```

```
7520 PRINT"■";:FORB=1TO40:PRINT"*";:NEXTB:O=O+1:RETURN
7999 REM ***'BEEP' ROUTINE***
8000 DATA120,173,28,3,141,46,3,173
8010 DATA21,3,141,47,3,169,55,141
8020 DATA20,3,169,192,141,21,3,162
8030 DATA24,169,0,157,0,212,202,208
8040 DATA250,169,5,141,5,212,169,0
8050 DATA141,6,212,165,13,141,24,212
8060 DATA169,0,141,52,3,86,96,165
8070 DATA187,201,4,240,7,201,5,240
8080 DATA11,76,94,192,165,255,141,52
8090 DATA3,108,46,3,169,0,141,52
8100 DATA3,108,46,3,173,52,3,201
8110 DATA255,240,3,109,46,3,165,197
8120 DATA201,64,200,9,162,32,142,4
8130 DATA212,108,48,3,141,1,212,169
8140 DATA33,141,4,212,108,46,3,255
8150 FORI=8TO19:READA
8160 POKEI+49152,A:NEXTI
8170 RETURN
8500 POKE54296,15:POKE54277,0:POKE54278,0
8510 POKE54284,9:POKE54285,0
8520 FORI=1TO150
8530 POKE54273,I:POKE54273,I+1
8540 POKE54280,151-I:POKE54281,152-I
8550 POKE54276,33:POKE54283,33
8560 POKE54276,32:POKE54283,32
8570 NEXTI:RETURN
```

MACHINE CODE — THE EASY WAY

Dovid Ellis leads you gently through the jungle of machine code in the second part of our series

In the previous article we looked at a simple program that stored the value in the accumulator to a memory location — in this case the screen The operation is identical to the BASIC POKE command If the variable 'a' contained a value between zero and 255, then POKE &C000,a would achieve the same result as the machine code program

However, without some method of branching and performing tests, any computer would be little more than a glorified calculator!

In CPC464 BASIC, there are various methods of branching and looping GOTO is probably the most widely used and controversial of these, and there is also GOSUB, FOR NEXT, and WHILE WEND When using machine code the choice is limited in effect to using GOTO and GOSUB although a FORTH ASSEMBLER has the bonus of allowing most of the high level structures to be used

Of course the word 'GOTO' is not actually used in machine code The mnemonic JP meaning 'jump' is used in a similar manner to GOTO, and JR (jump relative) is also used The difference between the two is that a JR can only jump within a certain range (+127 to -128) whereas a JP can jump up to 65535 bytes in either direction For reasons that will be explained later, a JR is always preferable to a JP A few 'special' Z80 jump instructions are also provided, such as DJNZ and LDIR which will be covered shortly

The equivalent of the BASIC GOSUB in machine code is CALL. The end of the machine code subroutine is signalled by the RET mnemonic, so as you can see this operation is virtually the same as in BASIC

Taking the short machine code program given in the last article, let's try and use a loop to store the value in the accumulator to more than one memory location, in this case one line of 80 locations I am sure that you will all agree that the following BASIC program will perform this feat — albeit most inefficiently -

```
10 LET A=255
20 LET B=80
30 LET HL=&c000
40 POKE HL,A
50 HL=HL + 1
60 B=B-1:IF B<>0 THEN GOTO 40
```

Now study the machine code assembly language program listed below -

```
        LD A,255
        LD a,25
        LD HL,&c000
HERE    LD (HL),A
        INC HL
        DJNZ HERE
```

The first instruction loads the accumulator with 255, equivalent to setting the variable A to 255 in line 10 of the BASIC program The second instruction loads the register B with the value of 80, again equivalent to line 20 of the BASIC program The third instruction loads the HL register pair with the screen addreses of &c000, the same as in line 30 H and L are two Z80 registers that can be used either singly (as in 8 bit registers), or combined together to form a 16 bit register pair, as used here A 16 bit register pair can hold values from -32768 to 65535 Although H and L can be used as single registers they are normally used as a pair, and usually for holding addresses The H register hold the high part of the address (*256), and the L register holds the low part of the address

The next instruction stores the value in the accumulator to the address that is 'pointed' to by HL The brackets around HL signify that it is the address where the value will be stored, and not the HL register itself This can be compared directly to the POKE instruction of BASIC INC is a machine code instruction that adds a value of 1 to the register that is specified — in this case HL DJNZ performs exactly the same functions as those shown in line 60 of the BASIC program. The B register is first decramented by 1 If the B register does not equal zero then a jump is taken to HERE As B is set to 80 the jump will take place 80 times When B does equal zero then the program will continue on from its present position

All that needs doing now is to look up the various opcodes, and to calculate the jump displacement The first try will produce -

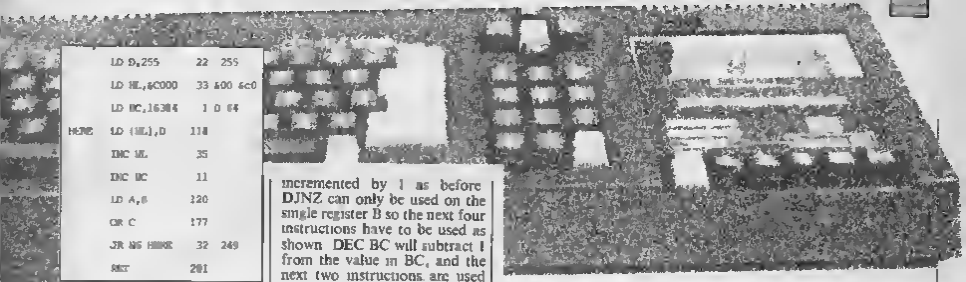
```
        LD A,255        62  255
        LD B,80         6   80
        LD HL,&c000     33  &00 &c0
HERE    LD (HL),A       119
        INC HL          35
        DJNZ HERE       16  __
```

The displacement value in the last instruction now needs calculating This is a lot easier than some people would have you believe! For a backward jump as in this case, simply count the number of instructions backwards, starting from '____' and a count of 1 A count of 4 will take us back to HERE Subtract your answer from 256 and this will give the correct displacement — in this case 256 - 4 = 252 The final list of machine code numbers is therefore—

```
62,255,6,80,33,&00,&c0,119,35 16,252,
```

with the RET placed at the end Enter these numbers in a DATA line and RUN the BASIC loader program (see last article) When you CALL the machine code program you will see a complete line drawn across the screen Try the BASIC program listing in this article which does the same thing, and see just how much quicker the machine code version is

A better idea of the difference in speed will be gained by changing the program so that the whole of the screen is filled The following program will accomplish this -



```
        LD D,255        22  255
        LD HL,6C000     33 600 6c0
        LD BC,16384     1 0 64
HERE    LD (HL),D       114
        INC HL          35
        INC BC          11
        LD A,B          120
        OR C            177
        JR NZ HERE      32  249
        RET             201
```

There are quite a few differences from the previous program — another Z80 register, D, is used to hold the value that will be placed into the memory locations. As we need to fill more than 255 locations the C register is used in conjunction with B to give the register pair BC. B will hold the value of 64, and C the value of zero, giving us 64 * 256 + 0 which is 16384. The memory address pointed to by HL is then loaded with the contents of the D register, HL is incremented by 1 as before. DJNZ can only be used on the single register B so the next four instructions have to be used as shown. DEC BC will subtract 1 from the value in BC, and the next two instructions are used to check if the value of BC is zero. The accumulator is loaded with the value of B and then a logical OR is performed between A and C. If the result of this is not zero (NZ) then a relative jump (JR) is taken back to HERE otherwise the program will return to BASIC.

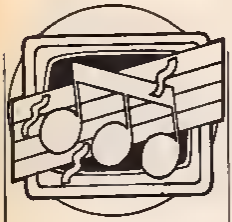
Enter the machine code numbers given on the right of the program into DATA statements, and then try CALLing the program. Compare the speed that the screen is filled up with the BASIC program -

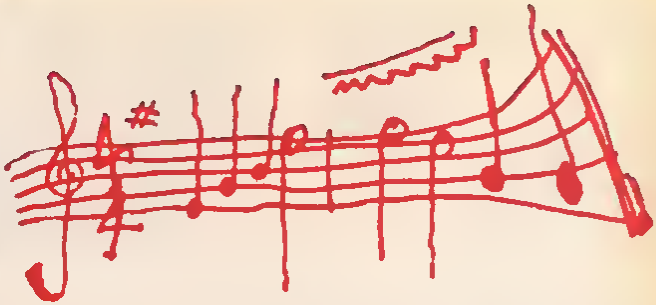
```
FOR X=6C000 to &FFFF:POKE X,255:NEXT
```

You may be excused for thinking that the BASIC program uses up less memory than its machine code counterpart. The BASIC program, if used on one line, will use up 33 bytes. The machine code program will only use up 16 bytes. Remember that the program that you use to load in the machine code program does not count — once the machine code program has been poked to memory, the BASIC program is no longer needed. Remember also that if you wish to save any machine code programs to tape or disc then it will be easier to save them as BINARY file, and not as a list of DATA statements within a BASIC program.

Finally for this week, try the following short BASIC line which makes use of the machine code program just shown. Try it with all three MODES and I think that you will be suitably impressed by the speed -

```
MODE 0 : FOR K=0 TO 255 : POKE 30001,K : CALL 30000 : NEXT
```





MUSIC AND THE MICRO

Clive Giffard helps you to understand sound on your Dragon and Oric, and looks at two Spectrum sound packages

Let's consider how two machines, the Dragon 32 and the Oric, make music. Though both are getting a little long in the tooth, they have considerable followings and both can make effective music and sound effects.

The Dragon is the simplest of the two with just single-channel sound. This can be programmed by one of two commands, SOUND and PLAY. SOUND is followed by two values, the first is the pitch and the second is the duration of the note. Both values can be any number between 1 and 255.

In contrast, PLAY must be followed by a string containing letters from A to G (i.e. normal musical notation). In addition, the string requires other parameters such as note length, octave (between 1 and 5) and pause between notes. For example, PLAY "05P240CP240DP240E" will play the first three notes of the highest octave with a very short pause between each sound. SOUND is more useful for effects while PLAY is particularly good for creating simple tunes. Program 1 is an example of each at work.

The Oric has three commands that can create and play complex multi-channel sounds. Briefly, the three commands are PLAY, SOUND and MUSIC. PLAY creates a sound envelope or shape which is actually played by either SOUND or MUSIC. As with the Dragon's SOUND command, the Oric's command of the same name can be used for creating sound effects while MUSIC, as its name suggests, is more use in creating your own tunes. The MUSIC command requires four parameters, the channel number (between 1 and 3), the octave number (between 0 and 6), the actual note (between 1 and 12 with 1 equal to C, 2 to C sharp and so on) and volume level.

The duration of each note is controlled by the Oric's pause command, WAIT, with the number following equal to the pause length in milliseconds. Always end the note with the command PLAY 0,0,0,0 which effectively switches the sound off. Program 2 is a very well-known tune given the Oric treatment.

The Spectrum has many good points but few would admit to its sound being one of them. Yet the extraordinary inventiveness that some programmers have employed has resulted in a number of pieces of software, all designed to improve the Spectrum's meagre sound output. 'Spectrum Sound Effects', from MFM Data Services, is one such title. The program offers a large number (50, in fact) of pre-programmed sound effects plus the facility to create your own effects using the machine code routine provided. The program will also plot a graph of each sound showing its envelope shape and has a keyboard feature allowing you to play any of the sounds at varying pitches.

The program's peripheral features and instructions are excellent but the actual sound effects leave a lot to be desired. The effects are the core of the program but I find it hard to believe the manual's description of many of the sounds. With this in mind, I couldn't recommend this program knowing that there are better alternatives.

Sound sampling is a truly fascinating area of computerised music-making. Computers can take a sample of sound, anything from an explosion to a dog barking and then re-play it at a different tempo or pitch. I'm sure that most people have heard examples of sound sampling in action, David Bowie is one artist that has used this effect.

Such features have only been available on large and very expensive machines such as the Fairlight Synthesiser costing many thousands of pounds until Datel Electronics recently introduced a sampler for the Spectrum costing £50.00. The unit plugs into the expansion port and comes complete with a small microphone and a cassette of software. This software consists of four separate programs; effects, keyboard, sequencer and games program. Let's deal with each in turn.

The effects program allows you to record a sound and then play it back with a different pitch or tempo, play the sound backwards, play it with echo or with several other effects. The second program allows you to play your sampled sound back using the Spectrum as a real-time, 10 octave keyboard. This feature would have been excellent if it weren't for the Spectrum's tacky keyboard. The third program allows you to use your Spectrum as a sequencer, composing a tune of up to 1000 notes of different durations and then playing it back at a selected tempo. A particularly valuable feature of this program is its easy-to-use editor allowing changes to be made to the note's pitch or duration.

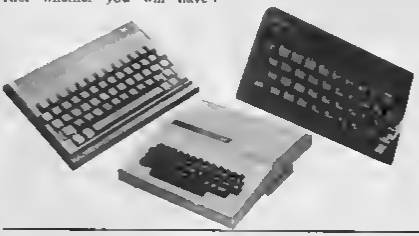
The final program is an excellent idea allowing you to use the sampler effects within your own programs. Datel call it a Game Speak program and this is obviously a main area of potential use.

The instructions supplied are clear but not comprehensive

enough in certain areas, for example how do you connect the unit up to an external amplification source The actual sound quality is reasonable, certainly better than you would expect from the Spectrum Sound effects other than the human voice generally don't seem to come across as effectively

Despite this, the excellent software and low price tag make this system well worth considering, but have a think first whether you will have much practical use for such a device

A final plea If any of you have hints or tips involved with sound or music on your micro or if you just wish to comment on the 'Music And The Micro' column so far, then please write to me, via Home Computing Weekly. We are particularly interested in hearing from anyone who uses a home computer actively in making music We look forward to hearing from you



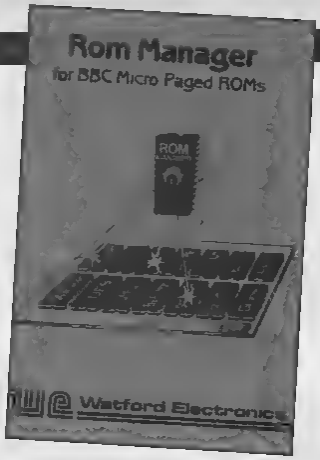
Listing 1

```
10 FOR N=1 TO 76:IF N=19 OR N=37 THEN RE
STORE
20 IF N=27 OR N=55 THEN FOR D=1 TO 20:RE
AD DN:NEXT DN
30 READ A,B:IF A>12 THEN C=C+1:A=A-12
40 IF A<1 THEN C=C-1:A=A-(2*A)
50 MUSIC 1,C,A,0:MUSIC 2,C+1,A,0:MUSIC 3
,C-1,A,0
60 PLAY 7,0,1,20000:WAIT 0-2:NEXT N:PLAY
 0,0,0,0
70 DATA 8,15,9,15,10,15,18,25,-10,15,10,
25,-10,15,18.45
80 DATA 6,15.8,15,9,15,10,15,6,15,8,15,1
0,25.5,15,8,25,6,70
90 DATA 3,15,1,15,-12,15,15,15,6,15,10.2
8,8,15,5,15,3,15,8.55
100 DATA 6,15.8,15.9,15,10,15,6,15,8,15.
10,25,6,15,8,25
110 DATA 10,15,6,15,8,15,10,25,6,15.8,25
120 DATA 10,15,6,15,8,15,10,25,5,15,8,25
,6,100
```

Listing 2

```
10 PLAY "T2L6CCGGAAGP6FFEEDDC"
20 PLAY "P6GGFFEEDP6GGFFEED"
30 PLAY "P6CCGGAAGP6FFEEDDC"
```

FIRMWARE



Richard Seeley gives the thumbs up to Watford Electronics' Rom Manager

Rom Manager

If you use a number of sideways ROMS in your BBC then sooner or later you're going to get a number of commands which are duplicated on more than one ROM

This might not seem too great a problem at the time but when you find your commands going to the wrong utility program and having effects you weren't expecting, it can become very annoying

Take a simple command such as *EDITOR This has no effect on the standard BBC machine but I have several ROMs which accept and respond to this command One allows me to edit discs, one allows me to have full screen editing and another gives me a search and replace feature It is most frustrating to find yourself constantly dropping into the wrong system

In order to avoid this you can constantly keep swapping the ROMs, in order to change their priority, or you can buy this chip

Watford is a company well known for its ability to provide solutions for problems even before you understand the problem and need the solution This is another example and the ROM allows you to control completely the action of all the other ROMs you use

Figure 1 shows the command list Certain of these commands are rather pointless and esoteric *CHECKSUM, *FUNCTION and *EXPLAINFX are such commands. The first is used so rarely as to be pointless and the others are likely to be provided elsewhere if you have a need to buy ROM Manager!

The bulk of the other commands involves making certain that the command you want goes to the ROM you specify *DIRECT (and its twin *VECTOR) makes this possible. If you are using a certain ROM a great deal then *DEFAULT is the simplest way to control the system *NAMES gives a read out of all the ROMs inside the machine

*INCLUDE, *REMOVE and *RAM are rather strange inclusions They allow you to add a RAM based routine to the list of ROMs and call it as if it were a ROM itself The idea is that you can run and debug a piece of software that is meant to run in EPROM from main memory It could be useful but if you're writing this type of code the likelihood is that you already have sideways RAM in the memory space from &8000 to &BFFF anyway

The information commands are very useful indeed. *NAMES is the one that I use most frequently because I prefer to specify the ROMs by number rather than by name. *STATUS gives full information about a ROM including details of whether it is switched off or not (by the use of *START and *STOP)

*EXAMINE and its twin, *MODIFY, allow viewing and change of the contents of ROM and RAM using a hex and ASCII dump system The editing method is simple, and very easy to use TAB toggles between fields and cursor keys move around the display.

In all I have just one major criticism of the program and that concerns its action across a soft BREAK I would have thought it possible to maintain the status of the system through a soft BREAK but this isn't the case If you press break then all the ROMs are powered again and you are back to square one

Apart from that one niggle there is a great deal to be said for this system and I can see it being of great value to the growing number of BBC users with enough ROMs to cause clashes of command **R.S.**

Figure 1

Command list for ROM Manager

```
Watford Electronics
ROM MANAGER 1.10
CHECKSUM <rom>
DEFAULT <command>
DIRECT <rom> <command>
EXAMINE <rom>
        (<start addr>)
EXPLAINFX (<number>)
FILE <command>
FUNCTION (<key number>)
INCLUDE <start addr>
MODIFY (<start addr>)
NAMES
RAM <command>
REMOVE
SPECIFY <rom>
START (<rom>)
STATUS <rom>
STOP <rom>
VALUES
VECTOR <rom> <command>
```

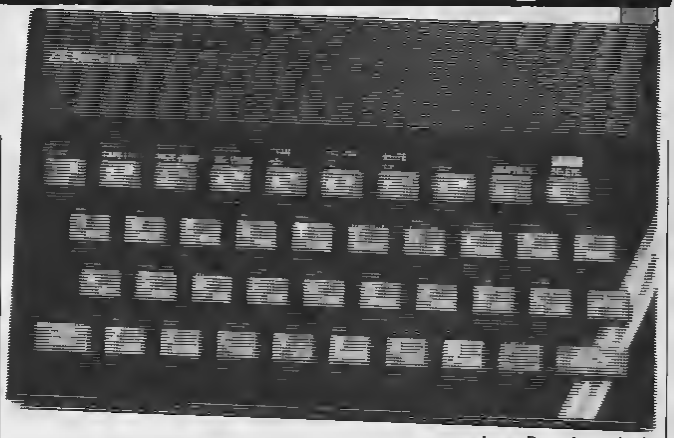
Price: £23 30

Publisher: Watford Electronics

Address: 250 High St, Watford, WD1 2AN

BBC

BEGINNING MACHINE CODE



Let Diana Smith — assisted by husband Colin — take you through the minefield of machine code programming on your Spectrum

This is the first in a series of articles which aim to introduce you to simple Spectrum machine code programming. It assumes that you are familiar with simple BASIC programming techniques such as FOR-NEXT loops, IF statements etc, which are explained in the Spectrum manual.

Our emphasis will be on *learning by doing* and will use examples to show how machine code routines can be developed to replace their BASIC equivalents.

By the end of the series you should be able to write your own machine code subroutines to speed up slow sections of BASIC and eventually, perhaps, put a number of your machine code routines together to produce a complete program in code.

Machine code is normally written in assembly language. If you have PEEKed into the Spectrum's ROM (Read Only Memory), you will have noticed that it is a series of whole numbers between 0 and 255. These are the machine code instructions. They're not very meaningful on their own, are they!

If you turn to Appendix A of your Spectrum manual, you will see a list of the mnemonics (instruction names) which correspond to the code numbers. It is these mnemonics which form Z80 assembly language. Z80 is the name of the CPU — Central Processing Unit — used in the Spectrum.

As an example, there is a direct equivalent in Z80 machine code for the BASIC statement RETURN. The code is 201 and the assembly language mnemonic is RET — far easier to remember than 201, isn't it! You can buy an assembler program on cassette which allows you to key the assembly language program into the Spectrum and it translates the mnemonics into code for you. These programs have other useful facilities such as allowing editing of the mnemonics. To start with, however, you should be able to convert your short routines by hand, referring to Appendix A of the Spectrum manual.

Note that most Assembler program listings use upper case letters, whereas Appendix A of the manual uses lower case. This is just another way of writing the same thing.

OK! Let's try an example.

Type in Listing 1, which is a simple machine code loader program. Save this on cassette. You can use it to load all the examples in the series. A loader simply makes it easier to POKE machine code into memory.

We will start our programming by looking at how to print characters on the screen.

Add the DATA statements in Listing 2 to the loader program and RUN the program. The loader will finish with the error report OUT OF DATA when it has POKEd in all your numbers. Run the code by keying RAND USR 30000. My name should appear in the top left hand corner of the screen.

The Assembler listing in Fig 1 shows what we are doing: the numbers on the left are the memory addresses into which the code (the numbers on the right) are POKEd. In the middle are the mnemonics. As you can see, the assembler works out the code of each character for you eg "D" = 68.

The first 5 bytes use the CALL instruction — equivalent to GOSUB in Basic — to call a ROM routine at address 5633. Preceded by LD A, 2 this routine prepares the computer to print something on the screen.

Below that are the bytes in the DATA statement on line 2010, which are in groups of LD A,n ,RST 16. LD A,n means Load the A register with the number n, equivalent to LET A = number in Basic, but remember that n must be a whole number between 0 and 255. RST stands for ReStarT and calls another ROM routine (at address 16) which prints any character, whose code is in the A register, at the next print position.

The last byte, 201, is the RET instruction to end the routine and take us back to Basic. Whenever you use this technique, you must sandwich your LD A,n, RST 16 instructions between the code of lines 2000 and 2020 or it won't work!

If you run the code once more with RAND USR 30000 ENTER, my name will be printed again, immediately to the right of the previous position ie in the next print position — equivalent to PRINT "Diana".

By changing the Data statement on line 2010, you can now print anything you like!

Feeling confident? Then let's be a little more adventurous

(1) Load the loader program from tape, then
(2) define a graphic character by adding lines 1 to 8 given in Listing 3
(3) Fig 2 gives an assembler listing of the next piece of code Key in a new DATA statement made up of the byte numbers shown in the right hand column of the listing It might be worth saving this on tape, just in case you make a mistake
(4) RUN the Loader program and
(5) run the code with RAND USR 30000 ENTER

This program makes use of a ROM routine, starting at address 8252, which prints a string of characters using the RST 16 instructions. The assembler uses labels to calculate addresses for you L1 is the address of the first byte to be printed Its address is loaded into the DE register pair by the LD DE, L1 instructions LD BC,24 loads the number of bytes to be printed into the BC register pair and we are ready to call the ROM routine This saves you having to repeatedly code up LD A,n, RST 16, by automatically moving through the list of characters (the define byte, DEFB numbers), loading them into the A register and executing RST 16 until printing is complete

As you can see, the LD A,n,RST 16 sequence can be used to move the print position, change the colours, etc and print graphic characters It doesn't matter which method you use

Check the DEFB values against the codes and corresponding characters in Appendix A of the manual The code is equivalent to the Basic statement PRINT AT 11,11, PAPER 0, INK 7; "1"; INK 2; FLASH 1,"H", FLASH 0, INK 7, " HCW " (H is the graphic H character)

You can also use this technique to print TOKENS, but I'll leave you to try that for yourself

In the next article we will explain what registers and addresses are and how they can be used and the machine code equivalent of the BASIC FOR/NEXT loop

Listing 1

```
1000 CLEAR 29999  REM reserve
memory above 29999 for code
1010 LET address=30000. REM this
is the address of the first byte
of machine code
1020 READ byte
1030 POKE address,byte  REM poke
the byte into memory
1040 LET address=address+1  REM
calculate next address
1050 GO TO 1020  REM next byte
```

Listing 2

```
2000 DATA 62,2,205,1,22
2010 DATA 62,66,215,62,105,215,6
2,97,215,62,110,215,62,97,215
2020 DATA 201
```

Listing 3

```
1 POKE USR "H"+0,0
2 POKE USR "H"+1,102
3 POKE USR "H"+2,126
4 POKE USR "H"+3,126
5 POKE USR "H"+4,126
6 POKE USR "H"+5,60
7 POKE USR "H"+6,24
8 POKE USR "H"+7,0
```

Figure 1

```
30000          LD    A,2          62
                                  2
30002          CALL  6633         205
                                  1
                                  22
30005          LD    A,"D"        62
                                  66
30007          RST   16           215
30000          LD    A,"a"        62
                                  105
30010          RST   16           215
30011          LD    A,"a"        62
                                  97
30013          RST   16           215
30014          LD    A,"n"        62
                                  110
30016          RST   16           215
30017          LD    A,"a"        62
                                  97
30019          RST   16           215
30020          RET                201
```

Figure 2

```
30000          LD    A,2          62
                                  2
30002          CALL  5633         205
                                  1
                                  22
30005          LD    DE,L1        17
                                  65
                                  117
30008          LD    BC,24        1
                                  24
                                  0
30011          CALL  8252         205
                                  60
                                  32
30014          RET                201
30015 L1       DEFB  22           22
30016          DEFB  11           11
30017          DEFB  11           11
30018          DEFB  17           17
30019          DEFB  0            0
30020          DEFB  16           16
30021          DEFB  7            7
30022          DEFB  32           32
30023          DEFB  73           73
30024          DEFB  32           32
30025          DEFB  16           16
30026          DEFB  2            2
30027          DEFB  18           18
30028          DEFB  1            1
30029          DEFB  151          151
30030          DEFB  18           18
30031          DEFB  0            0
30032          DEFB  16           16
30033          DEFB  7            7
30034          DEFB  32           32
30035          DEFB  72           72
30036          DEFB  67           67
30037          DEFB  87           87
30038          DEFB  32           32
```

USER-DEFINED CHARACTERS

Shingo Sugiura continues his series with the procedure for editing

This week, we go on to the procedure which controls the editing, amongst other less important procedures.

First, procedure "prompt" prints the options available to the user: edit, save the characters (which, incidentally, saves characters in a BASIC format rather than as a section of memory), restart option which allows you to clear all the user defined characters and last but not least, the quit option. Having printed these options, the program waits until one of the options is selected. The option is held in A$.

The next procedure "edit" is probably the most important procedure in the whole program. This actually handles all the user inputs in edit mode. In line 500, a window is set up just below the enlarged editing grid and then you are asked to input the ASCII code of the character you would like to edit. This is not done by a simple INPUT statement.

Instead, I have written a general purpose input routine which allows you to specify the maximum length of the input string and the characters allowed in the input string. This may seem like a waste of memory but I feel that the INPUT routine is very messy, especially when clever clogs type in "6&#/#)JF]*+=" on being asked to input a number!

In the next line, you will notice a CALL statement. Yes, I'm afraid I had to resort to machine code for much of this program because even BBC BASIC is too slow when fiddling with numbers at bit level. Don't worry, you don't actually need to understand how the machine code routines work as long as you know what they do. So line 520 calls a machine code routine which reserves the current definition of character 255. This may seem a pointless thing to do until you realise how this character generator works. In fact, I have decided to edit character 255 no matter which character you choose to edit. In this way, if you decide that you've made a mess of the character you're editing or if you decide that you don't want to edit the character at all, you may quit the editing mode and get the old definition back. Did you understand that? No, neither did I.

Let me try to make it clearer with an example. Say you choose to edit character 227. The program reserves the current definition of character 255 in a safe part of memory, then copies the definition of 227 to 255. From now on, you will be editing character 255 and 227 will be left well alone. Now, when you've finished editing, the new definition of 255 will be transferred to 227 and the old definition of 255 (which has been saved in a safe part of memory) will be transferred back to 255.

However, if you decide that you don't want to change character 227 or you clear it by mistake, since the actual definition of 227 has not been touched, all that needs to be done is to restore the old definition of 255 and all is well. This may not be the neatest way of doing things but it works and it turned out to be very easy to program (the whole program in fact took less than a day to write).

Line 530 initialises the cursor position to the top left-hand corner of the grid.

The REPEAT-UNTIL loop from 540 to 650 contains the main loop. In line 550, the cursor is positioned in the appropriate position. In line 560, the keyboard is scanned. If it's the space bar, ie A=32, then the current pixel is filled in by calling PROCedure "fill" but if it's TAB (A=9), then the current pixel is erased by calling PROCedure "erase". In 580 and 590, if the cursor key is pressed in conjunction with SHIFT, the cursor position is updated to the appropriate position. In lines 600 and 620, the cursor position is updated according to which cursor key is pressed.

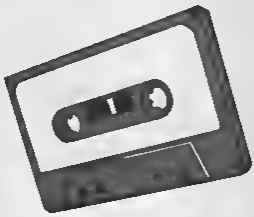
You will notice that there is no IF statement here and that is because I have used Boolean algebra. I'm afraid that I don't have room to describe this technique in detail but basically, it relies on the fact that when a condition is met, the computer generates -1, or otherwise a zero is generated. In line 620 to 640, the function keys are checked and if one of them is pressed, the appropriate facility is called. In line 650, a check is made to see whether the RETURN key has been pressed. If it has, the loop is exited. Otherwise you go back to line 540.

In line 660, the little window below the grid is cleared and the old definition of 255 is restored as I explained. In line 670, you are asked to enter the ASCII code of the character you would like to assign the new definition to. At this stage, you may choose to ignore the new definition by simply pressing return without entering anything. If a number is entered, the new definition is assigned to the appropriate character in line 690. In line 700, the text window is restored and the character set at the bottom of the screen is updated.

That's it for this week. You may like to read up on Boolean logic if you like. More procedures will be revealed next time.

```
410DEFPROCprompt
420PROCwindow
430PRINT''"1) Edit" "2) Save" "3) Restart" "4) Quit"
440PRINT "Enter choice ";
450REPEAT A$=GET$
```

```
460UNTILINSTR("1234",A$)<>0
470VDUASCA$,26
480ENDPROC
490DEFPROCedit
500PROCwindow
510?char=VAL(FNinput("Enter code ",48,57,3))
520CALLreserve
530X%=0:Y%=0
540REPEAT
550PRINTTAB(X%+1,Y%+2);
560A=GET
570IF A=32 PROCfill ELSE IF A=9 PROCerase
580IF A=155 X%=0 ELSE IF A=156 X%=7
590IF A=158 Y%=0 ELSE IF A=157 Y%=7
600X%=X%+(A=139 AND X%>0)-(A=140 AND X%<7)
610Y%=Y%+(A=142 AND Y%>0)-(A=141 AND Y%<7)
620IF A=127 PROCclear ELSE IF A=128 PROCinvert
630IF A=129 CALLrot_left ELSE IF A=130 CALLrot_right
640IF A=131 CALLupturn ELSE IF A=132 CALLmirror
650UNTILA=13
660PROCwindow:CALLrestore
670C%=VAL(FNinput("Enter code ",48,57,3))
680IF C%=0 ENDPROC
690VDU23,C%,?char,char?1,char?2,char?3,char?4,char?5,char?6,char?7
700VDU26:PROCset
710ENDPROC
```



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Articles on certain aspects of using home computers should be no longer than 1000 words. Try to keep to the style you see in HCW and include programming examples where they will help the reader understand the subject. We will convert your sketched illustrations into final artwork

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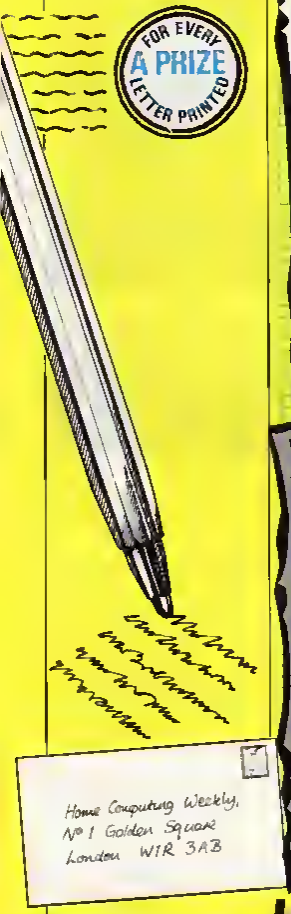


Fishy business

I am writing to tell you about a few things.

Firstly, I am pleased to say that I think I made a very good decision to order HCW every week and I think it is a super mag.

Secondly, I would like to make a suggestion that you include a playing tips corner in the magazine every week. If you did this I think your magazine would be even more popular than it already is.

My third point is this. Why doesn't one of those bright sparks writing all these labyrinth platform games make up a game about fishing. I know that it probably would be very hard, but surely there is someone who could manage this. I'm a real fan of fishing and I would like to see this done.

Nicholas Larkin, Brixworth

Thank you for all your compliments about HCW. We do our best. We are happy to include any playing tips on our readers page if people wish to send them in, so get writing. Alligata software has recently released a game called Match Fishing which is available for the Spectrum.

VIC plea

I received my first copy of HCW last week and I must congratulate you on your excellent magazine. The price is brilliant, the prizes are excellent and the reviews on books and games are truly brilliant.

I received issue 113 and the review on the new Atari was in it. I have a VIC-20 myself and I do not know anyone who does any serious programming on the VIC. I am really desperate to exchange some ideas. If anyone would like to know about hi-res graphics and how to create your own graphics then I would be really pleased to help them out.

If anyone would like to write to me, I would be pleased to hear from them.

Biona Pinto 38 Alanbrook Gravesend Kent DA12 1NA

Suggestion box

A few weeks ago I received a copy of Give My Regards to Broadstreet which I recently won in your competition, and for which I am very grateful.

In return for this gift, might I offer a few comments on your magazine.

News is an important part of any computer magazine, and the news pages in HCW appear to be especially well-informed. The software reviews are adequate though the ratings system could perhaps be more detailed. In one issue HCW manages more reviews than some monthlies which is a reasonable achievement.

In my opinion the biggest drawback is the games listings. Utility programs are OK and can be genuinely useful, but I see games listings as a waste of precious editorial space. Magazine games are at best average and, frankly, they pale completely against most of the commercially available programs. As an improvement to HCW, I would suggest the withdrawal of the games listings, as I don't believe that many people (if any at all) take the trouble to type them in any more. To replace the listings, some new features could be bought in such as a Cheat's Page for tips, POKEs etc on games, or a Personality Page where a prominent person in the computer industry is interviewed each week.

Some of my views may be controversial. If so, then other readers should write in to defend themselves if they have conflicting ideas. I believe a magazine should be for its readers and should be able to adapt to their needs. It is for this reason that I have written this letter, and I hope my views have been of interest to you.

Lastly, may I nominate Ultimate Play the Game for a Gold Cassette Award as I believe that this firm has been in the forefront of software innovation for a few years now and has done much to lift the standard of software to ever-increasing heights of quality.

S G Young, Glasgow

Load up

In reply to Lee Goddard's plea for help on the loading of the Chequered Flag I think I have the answer. As you said, he could have a loading error or faulty tape but in but in my experience I have found that loading problems can occur when a joystick interface is connected.

This also happens with Argus Press Software's American Football. If you take the interface out, don't forget to disconnect the power supply and load the game again. You should now be successful.

I am a proud Spectrum owner.

Chris Worthington, Bolton

See before you buy

I've read about a new system soon to hit the high streets which will allow computer users the opportunity to see games before they buy.

Unfortunately it is still on its way — and then in limited supply.

This seems to be a neglected part of computer games today — the see-before-you-buy idea. Too many shops make out that it really is too much trouble to load up games so that you may check them out — and if you think about it, each game does take a while to load, especially if you want to pick the best out of three or four on which you have your eye.

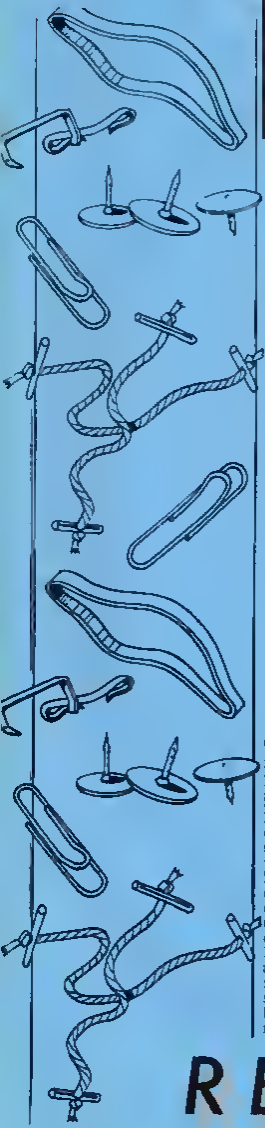
A good idea would be for software houses to release demo versions of games. These could be taken as deposits — if you like the game the cost of the demo is taken off the cost of the game when you buy it.

Beyond went one better on my computer, the C64, by releasing Spy Vs Spy with a part-demo version of Psi Warrior on the reverse.

Games are rather like records. You don't buy a record unless you hear it first, so why buy a game which you haven't had the chance to see?

Andy Clarke, Warwicks

LETTERS PAGE



We are pleased to announce the first winner in our Ashkeron! competition. Read on and learn how you too can win £25

As we announced in HCW110 (April 30th), we are running a monthly competition to find the best players of Mirrorsoft's new game Ashkeron! This week we can announce the first winner but there are plenty more prizes for you to win.

The prize of £25 each month will be given to the person who returns the best verification tape to Mirrorsoft. Full details of how to enter are inside each cassette.

If the score from one month is not beaten by anyone in the following months then the prize will still be awarded to the previous high scorer. This means that you could win much more if you become the Adventurer of the Month.

Home Computing Weekly/Ashkeron! Competition Winner June 1985

Our first winner is

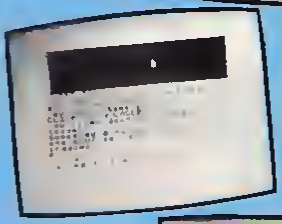
Simon Tucker, of Hook in Surrey. Simon is only 11 years old, but is a real fanatic about strategy type games and has had his Spectrum for three years. He attends Hook Middle School, and when he's not hooked up to his Spectrum he enjoys belonging to the boy scouts, going fishing, and working on the design and layout of model railways. He dived into Ashkeron! with enthusiasm, and his family lost the use of its television for a considerable length of time! However, he did finally finish it and believes Ashkeron! is great fun and quite a challenge to the strategist. Simon has asked that Mirrorsoft donate his £25 prize money to charity, so the money will be going into the Mirror's fund for those families who lost relatives in the Brussels football disaster.

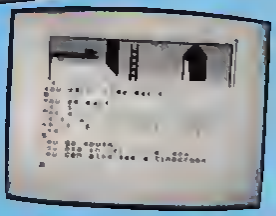
The clue for this month is:

"One of the early problems in Ashkeron! occurs when night falls. Some areas of the castle are permanently lit, but before too long you will wander into an area which has only natural light, and there isn't much of that in the hours of darkness! Finding a candle shouldn't prove too much of a problem to an avid explorer, and even lighting it should be fairly easy as a source of natural flame is not too far away. This is not, unfortunately, the complete answer to the problem because, as you may have already found, it doesn't always stay alight! What is really required is a method of lighting it wherever you are and whenever you need to. Examining something found in the lower reaches of the castle may spark off your imagination."

Colin Massitt, Texgate Computers

Here's yours visual clues:





READERS PAGE

R E A D E

Solution to last week's puzzle

R ashe R M eiri C
A ls O I rk E
M a M C hill I
R i P
O ni S

Making RAM ROM MICRO CHIPS!

Readers' hi-score table

Name	Game	Machine	Score
Beverley Kennet	Magic Mushrooms	BBC	390,889
Lee Caller	Jungle Hunt	Atari	59,130
	Preppie!	Atari	36,560
Antony Palourti	Sorcery	Amstrad	92 250

In your new-look HCW, you've got new features like a hi-score table and a readers' page, but why not have a crossword? To start you off I've compiled one for you

Also, here's something which will really make you use your Plot/Draw statement more on your Spectrum Just type in this line

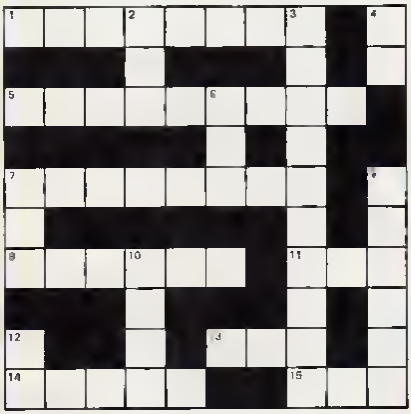
```
10 PLOT 100,40 DRAW 100
   100,556 RUN
```

then type GOTO 10, and watch

Also, on the Spectrum, does anyone know how you can compile speech?

Stuart Walding, Bretforton

Answer to Stuart's crossword next week



CLUES ACROSS
1 Sir Clives baby (8)
5 Daley ____ Decathlon (9)
7 Your top room in the house is under siege (8)
9 RND stands for ___, number (6)
11 A Spectrum Amstrad colour keyword (3)
13 Karate expert Bruce (3)
14 ___, instruments (5)
15 The opposite of 8 down (3)

CLUES DOWN
2 Commodore initials (3)
3 Jarset Willy's brother (10)
4. 99/4A (2)
6 Jar Willy (3)
8. The Oric's memory (8)
10 The most important computer word (4)
12. The statement usually followed after a print statement (2)

This review was written by HCW reader Tejinerpal Singh Sohal of Coventry It's the first time he's ever written a review Hope you enjoy it — if you have reviews of your favourite games, send them to us at the Readers' Page Each one printed earns a prize for its author

Rockman

The object is to recover the 180 pieces of an amulet broken up by the forces of hell Opposing you are the evil king's minions who chase you throughout the 20 different caves Each cave contains eight parts of the amulet, and a pattern of rocks, plus some skulls To get the parts of the amulet you must dig around the cave, like in Dig Dug Once all the perts are recovered you have the chance to go through one of the exits The rocks fall down when you dig around them and sometimes landslides can be caused for your advantage

Graphically the game is good All the characters are double-heighted and superbly animated The minions look like cute cartoon characters Music plays and the sound effects could be irritating Your figure looks like Kojak

The ability to define keys is a good feature, as most VIC games controls are hard to master You can use the keys you feel are the most comfortable The game is a hybrid between Boulder Dash and Pengo

My personal best is around 120 pieces and I have discovered about 15 caves Each cave is different so new tactics must be used You can kill your enemies by pushing or causing landslides When they're hit by a rock a nice piece of animation turns them into rocks

Very playable and addictive

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VIC-20

READERS PAGE

JUMP JET

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Written by
Vaughan Dow
Jump Jet Pilot

Every pilot has the dream of flying one of these unique and complex fighting machines. Here is your chance to do what few pilots have the privilege to try.

Depending on your skill, confidence and courage, you have the choice of remaining near the landing pad, learning to hover and land, or venturing higher to practise your approaches.

When you think you have mastered these, then accelerate the Jump Jet into an attack fighter. Use the radar and range finder to seek and destroy the enemy, by launching heat-seeking air-to-air missiles. Beware! His radar and missile systems are as good as yours. Reckless pursuit is ill-advised, you must maintain a fuel level that will enable you to relocate and return to the aircraft carrier, executing the skills you have learned to achieve a successful landing.

You are now ready to proceed to the next skill level to face additional hazards, such as unpredictable swell and treacherous cross winds.

Be warned, this program is not a toy or game. You will need to co-ordinate your hands, eyes and mind to successfully complete each mission. Do not hope to achieve in a short time that which took the author three years to learn as a Jump Jet pilot, and over a year to record on this computer program.

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